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INDEX
VOLUME XII
1922

	Pages
January	1-86
February	87-180
March	181-268
April	269-366
May	367-464
June	465-562
July	563-658
August	659-736
September	737-814
October	815-890
November	891-984
December	985-1081

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SOCIAL WORK
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1922

INDEX

Page

Abbott, Grace. Federal Aid for Protection of Maternity and Infancy ... 737
Amendments to the Constitution ... 777
American Bakers Association. Harry E. Barnard, Ph. D. ... 494
American Red Cross Diet in China. Hartley Clarke Embrey ... 514
Amundsen, Miss George. Public Health Education ... 815
Anemia in Professional Donors. L. W. Famulener, M. D. ... 376
Armstrong, Donald B., M. D. Co-ordination of Voluntary Agencies ... 929
Awakening (Editorial) ... 1041

Bacterial Action of Dry Cleaning. Lloyd E. Jackson ... 507
Baker, S. Josephine, M. D., D. P. H. School Health Supervision ... 465
School Hygiene Under Boards of Health ... 832
Bancroft, Ada W. Proper Cleansing of Glassware ... 669
Barnard, Harry E., Ph. D. American Bakers Association ... 494
Bathing Places, Report of Committee on. George W. Simons, Jr., Chairman ... 121
B. Diphtheriae No. 8. Effect of Peptone Upon the Toxigenic Property of. Harriet Leslie Wilcox ... 608
Becker, Wm. V. Methods Suggested for Extermination of Mosquitoes ... 509
Before School Begins (Editorial) ... 776
Better Part of Valor (Editorial) ... 54
Bigelow, W. D., Chairman, Report on Canning ... 591
Black, John T., M. D. Report of Committee on Industrial Hygiene (State and Provincial Health Authorities) ... 839
Blanks and Forms, Simplicity in Preparation of. Charles H. Lerigo, M. D. ... 116
Bookkeeping East Harlem Health Center. Myra M. Hulst ... 683
Bottled Beverages and Soda Fountain Syrups. W. W. Skinner, D. Sc. ... 487
Botulism from the Regulatory Viewpoint. Charles Thom, Ph. D. ... 49
Botulism, Relation of Contaminated Rations to. Graham, Schwarze and Boughton ... 659
Boughton, I. B. Botulism, etc. ... 659
Brannan, John W., M. D. Occupational Therapy ... 367
Brensky, A. A. Chemical and Biological Reaction in Dorr-Peck Tank ... 299
Bryce, Peter H., M. D., Chairman. Report of Committee on Cold Storage ... 382
Buswell, A. M. Chemical and Biological Reaction in Dorr-Peck Tank ... 299

Campaign Against Yellow Fever in Mexico. Francisco C. Nájera, M. D. ... 181
Candies, Objectionable Forms of Penny. Charles H. LaWall, Ph. M. ... 318
Canning, Report of Committee on Problems of. W. D. Bigelow, Chairman ... 591
Cardiac Children, The Hygiene of. Charles Hendee Smith, M. D. ... 35
Carpenter, Howard Childs, M. D. Should Social Service Depts. Be Developed Into Depts. for Prevention of Disease ... 932
Ceylon, Public Health Work In. S. T. Gunasekaro, L. R. C. P., M. R. C. S. ... 414
Charts, Method of Making. G. H. de Paula Souza, M. D., Dr. P. H. ... 757
Chemical and Biological Reaction in Dorr-Peck Tank. Brensky and Neave ... 299
China (American Red Cross Diet). Hartley Clarke Embrey ... 514
City of the Future (Editorial) ... 616
Cleansing of Glassware. Van Saun, Bancroft and O'Gorman ... 669
Coello, Carlos V., M. D. Present Sanitary Conditions at Guayaquil ... 188
Common Communion Cup (Editorial) ... 949
Community Organization in Anti-tuberculosis Campaign. Godias J. Drolet ... 311
Confections (Sanitary Condition of). Fred W. Tanner and Esther Davis ... 605
Connor, M. E., M. D. Use of Fresh Water Fish as Mosquito Larvae Consumers ... 193
Conover, John R., M. D. Determination of Values of Soaps in Disinfection ... 602
Constitution and By-Laws of the A. P. H. A. ... 231
Constitution and By-Laws of the A. P. H. A. (New) ... 992
Contaminated Rations (Relation to C. Botulinum). Graham, Schwarze and Boughton ... 659
Co-operation (Food Manufacturer and Food Official). John P. Street, M. S. ... 225
Co-ordination of Public and Private Agencies. Elizabeth W. Holt, R. N. ... 922
Co-ordination of Voluntary Agencies. Donald B. Armstrong, M. D. ... 929
Copeland, Royal S., M. D. Import Diseases as They Affect the N. Y. C. Health Dept. ... 202
Correlation of Stream Pollution Criteria from Conn. Rivers. J. F. Jackson ... 124
Cremation Versus Burial. S. Adolphus Knopf, M. D. ... 389
Cummings, Hugh S., M. D. Situation Abroad as Regards Typhus ... 91

Davis, Esther. Some Observations on the Sanitary Conditions of Confections ... 605
Davis, William H., M. D. Report of Committee on Registration Affairs ... 576
Dealey, W. L., Ph. D. Discussion (Health Education and Publicity) ... 283
Dental Work as Prophylactic Measure. Thaddeus P. Hyatt, D. D. S. ... 325
Determination of Value of Certain Soaps. John R. Conover, M. D., and John L. Laird, M. D. ... 602
Detroit's Experience with Undernourished Children. George T. Palmer, Dr. P. H. ... 134
Diagnostic Chemistry as Routine Function. Gage and Earle ... 665
Dinwiddie, Courtenay. Discussion (Health Education and Publicity) ... 282
Diphtheria Antitoxin (Report of Committee). P. G. Heineman, Ph. D., Chairman ... 503
Diphtheria Control. B. E. Roberts, M. D. ... 328
Diphtheria, Reasons for Failure to Control. J. W. Robinson, M. D. ... 497
Donaldson, Wellington. Industrial Wastes in Relation to Water Supplies ... 420

Page

Drolet, Godias J. Community Organization Anti-tuberculosis Campaign ... 311
Dry Cleaning, Bacterial Action of. Lloyd E. Jackson ... 507
Dublin, Louis I., Ph. D. Municipal Health Department Practice ... 7
Earle, Edith. Diagnostic Chemistry as a Routine Function ... 665
Effect of Peptone (B. Diphtheriae No. 8). Harriet Leslie Wilcox ... 608
Ehrenfeld, Rose M., R. N. Relation of Public Health Nursing to Other Work ... 218
Ellis, Carlyle. Discussion (Motion Picture Symposium) ... 272
Embargo on Synthetic Drugs (Editorial) ... 854
Embrey, Hartley Clarke. American Red Cross Diet in China ... 514
Error of Omission (Editorial) ... 704
European Health Conditions. C.-E. A. Winslow, Dr. P. H. ... 94
Evans, W. A., M. D. Discussion (Health Education and Publicity) ... 288
Measure for Control of Acute Respiratory Diseases ... 1015

Famulener, L. W., M. D. Anemia in Professional Donors ... 376
Fatigue in Industry. Eugene Lyman Fisk, M. D. ... 212
Federal Aid for the Protection of Maternity and Infancy. Grace Abbott ... 737
Fifty-first Annual Meeting A. P. H. A ... 765
Filibustering in Two Hemispheres (Editorial). J. A. T. ... 950
Financing a County Health Unit. T. J. Robinson, U. S. P. H. S. ... 843
Finegan, Thomas E., Ph. D. School Hygiene Under Boards of Education ... 828
First Report Committee on Municipal Health Department Practice ... 7
Fish, Use of, as Consumers of Mosquito Larvae. M. E. Connor, M. D. ... 193
Fisher, Edwin A. New Garbage Reduction Works, Rochester, N. Y. ... 222
Fisk, Eugene Lyman, M. D. Fatigue in Industry ... 212
Food and Health (Abstract). Henry C. Sherman, Ph. D. ... 294
Fox, Carroll, M. D. Report of Committee on Salary Standards ... 693
Frost Little Plate Method. Hatfield and Park ... 478
Fuller, George W. Influence of Sanitary Engineering on Public Health ... 16
Functions of the Public Health Laboratory (Import Disease). William H. Park, M. D. ... 204

Gage, Stephen De M. Diagnostic Chemistry as Routine Function ... 665
Garbage Reduction Works at Rochester, N. Y. Edwin A. Fisher ... 222
Gesell, Arnold, Ph. D., M. D. Mental Hygiene Service for Pre-School Children ... 1030
Governing Council ... 1042
Graham, Robt., Ph. D. Relation of Contaminated Rations to C. Botulinum ... 659
Great Soul Passes (Editorial) ... 855
Guayaquil (Present Sanitary Conditions). Carlos V. Coello, M. D. ... 188
Gunesakara, S. T., L. R. C. P., M. R. C. S. Public Health Work in Ceylon ... 414

Half Century of Public Health. Stephen Smith, A. M., M. D., LL. D. ... 3
Harap, Henry. Result of Health Program in Summer Play School ... 594
Hardenbergh, W. A. Ventilation of Privies in Birmingham, Ala. ... 943
Harris, H. I., M. D. Ideal Health Dept. for City of 100,000 (Section from Municipal Health Dept. Practice) ... 891
Hatfield, Hazel M., M. D. Frost Little Plate Method ... 478
Health Bookkeeping in the East Harlem Health Center. Myra H. Hulst ... 683
Health Education and Publicity (Symposium). E. G. Routzahn, Chairman ... 279
Question I. What Is Being Done? ... 280
Question II. What Are the Problems? ... 286
Question III. What Can Be Done Co-operatively? ... 287
Question IV. What Can Be Done at Next Convention? ... 288
Healthful Home. Ira S. Wile, M. D. ... 295
Heinemann, P. G., Ph. D. Committee on Standard Preparation of Diphtheria Antitoxin ... 503
Hess, Alfred F., M. D. Prevention and Cure of Rickets ... 104
Hiscock, Ira V. Milk Inspection (Municipal Health Dept. Practice) ... 577
Hoffman, F. L., LL. D. Report of Committee on Institutional Statistics ... 385
Mortality Statistics of South American Republics ... 924
Holmes, S. J., Ph. D. Mortality with Reference to Whooping Cough ... 378
Holt, Elizabeth W., R. N. Co-ordination of Public and Private Agencies ... 922
Horn, David Wilbur, Ph. D. Local Health Boards and Medical Milk Commissions ... 837
How Can We Best Solve Midwifery Problem? Charles E. Ziegler, A. M., M. D. ... 405
How One Rural County Secured an Efficient Health Dept. ... 690
How Pueblo Health Dept. Met Flood Emergency. Earl C. McCain ... 844
How to Progress in Health Education (Symposium) ... 279
How You Can Help (Editorial) ... 948
Hulse, F. E. Sketch Mapping for Public Health Problems ... 1034
Hulst, Myra M. Health Bookkeeping in East Harlem Health Center ... 683
Hyatt, Thaddeus P., D. D. S. Dental Work as Prophylactic Measure ... 325
Hygiene of Cardiac Children. Charles Hendee Smith, M. D. ... 38

Ideal Health Department for City of 100,000. Winslow and Harris ... 891
Import Diseases as They Affect N. Y. C. Health Dept. Royal S. Copeland, M. D. ... 202
Industrial Hygiene (Report of Committee). John T. Black, M. D., Chairman ... 839
Industrial Wastes in Relation to Water Supplies. Wellington Donaldson ... 420
Influence of Sanitary Engineering on Public Health. George W. Fuller ... 16
Influenzal Meningitis. T. M. Rivers, M. D. ... 476
Interesting Step in China (Editorial) ... 228

Page

Jackson, Frederick J. Correlation of Stream Pollution 124
Jackson, Lloyd E. Bacterial Action of Dry Cleaning 507
Jacobs, P. P., Ph. D. Discussion (Motion Picture Symposium) 277

Kebler, Lyman F., M. D. Public Health Conserved (Postal Fraud Laws) 678
Kelley, Eugene R., M. D. Two Twilight Zones in Health Administration 563
Next Step for State Health Departments (Symposium) 995
Kleinschmidt, H. E. Discussion (Motion Pictures Symposium) 276
Knopf, S. Adolphus, M. D. Cremation Versus Burial 389
Kopeloff, Nicholas, Ph. D. Simple Method for Anaerobic Cultivation (Petri Dishes) 119
Kopf, Edwin W. Report of Committee Educational and Professional Standards for Vital Statisticians 1028

Laird, John L., M. D. Determination of Value of Soaps 602
LaWall, Charles H., Ph. M. Objectionable Forms of Penny Candy 318
Lerigo, Charles H., M. D. Simplicity in Preparing Blanks and Forms 116
Levy, E. C., M. D. New President of the A. P. H. A. 1043
Life Saving or Public Health? (Editorial) 229
Lipman, William H., M. D. (Report of Committee Preparation, Packing of Foods) 108
Lobenstine, Ralph W., M. D. Practical Means of Reducing Maternal Mortality 39
Local Health Boards and Medical Milk Commission. David Wilbur Horn, Ph. D 837

Make This Summer Less Dangerous (Editorial) 516
Making a Hospital the Civic Health Center. John Nevin, M. D 841
Marcus, Lawrence. Discussion (Health and Publicity) 287
Martin, Edward, M. D. Next Step for State Health Depts. (Symposium) 1005
Massachusetts-Halifax Health Commission. B. Franklin Royer, M. D 195
Maternity and Infancy (Federal Aid). Grace Abbott 737
Maternal Mortality, Practical Means of Reducing. Ralph W. Lobenstine, M. D 39
McCain, Earl C. How Pueblo Health Dept. Met Flood Emergency 844
McCormack, Dr. John Nathaniel, 1847-1922 619
McLaughlin, A. J., M. D. Presidential Address 985
Measure for Control of Acute Respiratory Diseases. W. A. Evans, M. D 1015
Medical Service of the State and Provincial Authorities of North America. Matthias Nicolls, Jr., M. D., Chairman 742
Mental Hygiene Service for Pre-School Children. Arnold Gesell, Ph. D., M. D 1030
Merrill, Theodore C., M. D. Applications of Principles of Nutrition 568
Methods Suggested for Elimination of Mosquitoes. William V. Becker 509
Meyer, Ernest C. Discussion (Motion Pictures Symposium) 275
Midwifery Problem. Charles Edward Ziegler, A. M., M. D 405
Milk Inspection (Chapter from Municipal Health Dept. Practice). Ira V. Hiscock 577
Milks (Dried) Report of Committee on Nutrition. Henry C. Sherman, Ph. D 113
Miller, K. E., M. D. Report of Committee on Rural Health Administration 316
Mobilizing Against Cancer (Editorial) 149
Morse, Sterne, M. D. Simple Method for Anaerobic Cultivation in Petri Dishes 119
Mortality of the Two Sexes with Regard to Whooping Cough. S. J. Holmes, Ph. D 378
Mortality Statistics of South American Republic. Frederick L. Hoffman, LL. D 924
Mosquito, Extermination of. William V. Becker 509
Motion Pictures (Symposium on). E. G. Routzahn, Chairman 269
Question I. Should There Be Any Difference? 270
Question II. What Standard Should Be Set? 272
Question III. What Are the Needs? 275
Question IV. How Can Health Depts. and Organizations Work Together? 277
Municipal Health Department Practice ..... 7 and 138
Milk 577
Vital Statistics 750
Water Supplies 759
Public Health Education 815
Ideal Health Dept. for a City of 100,000 891
Public Health Nursing 941

Najera, Francisco Castillo, M. D. Campaign Against Yellow Fever in Mexico 181
National Health Days (Editorial) 616
National Research Council. Victor C. Vaughan, M. D 746
Neave, S. L. Chemical and Biological Reaction, Dorr-Peck Tank 299
Nevin, John, M. D. Making a Hospital the Civic Health Center 841
New Constitution of the A. P. H. A. (Editorial) 230
New Editions of Old Masterpieces (Editorial) 774
New Garbage Reduction Works, Rochester, N. Y. Edwin A. Fisher 222
New Venture in School Medical Inspection. George T. Palmer, D. P. H 599
Next Step for State Health Depts. (Symposium) 995
Nicoll, Matthias, Jr., M. D. Report of Committee on Medical Service 742
1922 Progress Report Committee on Educational and Professional Standards for Vital Statisticians. Edwin W. Kopf, Chairman 1028
Notes on the Use of Fish as Mosquito Larvae Consumers. M. E. Connor, M. D 193
Nutrition Problems, Report of Committee on. Henry C. Sherman, Ph. D., Chairman 113
Nutrition, Recent Applications of the Principles of. H. Voille, M. D. and Theodore C. Merrill, M. D. 568

Objectionable Forms of Penny Candies. Charles H. LaWall, Ph. M 318
Occupational Therapy. John W. Brannan, M. D 367
Of Interest to Sanitary Engineers (Editorial) 775

	Page
O'Gorman, James J. Proper Cleansing of Glassware	669
One Woman's Life (Editorial)	519
Opportunities of Vital Statisticians. W. A. Plecker, M. D.	30
Organization of Public Health Nursing (Editorial)	775
Osborn, Stanley, M. D. Discussion (Symposium on Motion Pictures)	272
Palfrey, Francis W., M. D. Work of League of Red Cross Societies (Poland)	87
Palmer, George T., D. P. H. Report of Committee on More Accurate Population Estimates	34
New Venture in School Medical Inspection	599
Plans to Reduce Mortality from Acute Respiratory Diseases	1022
Pamphleteering and Public Health (Editorial)	148
Park, William H., M. D. Functions of P. H. Laboratory	204
Study of Practical Value of Frost Plate Method	478
Parsons, Payn B., M. D. Committee for Examination of Shellfish	574
Paterson, Robert G., Ph. D. Public Health Nursing in a State Dept	675
Pearl, Raymond, Ph. D., Sc. D., LL.D. Statistical Evaluation of P. H. Activities	915
Perkins, Roger G., M. D. Wider Development of Standard Methods	23
Report of Committee on Standard Methods	27
Pernicious Tendency in State Government (Editorial)	776
Plans to Reduce the High Mortality from Acute Respiratory Diseases. Henry F. Vaughan, D. P. H., and George T. Palmer, D. P. H	1022
Plecker, W. A., M. D. Opportunities of Vital Statisticians	30
Postal Fraud Laws (Enforcement of). Lyman F. Kebler, M. D	678
Potter, Alexander. Discussion (Proper Size for Rapid Sand Filters)	44
Practical Means of Reducing Maternal Mortality. Ralph W. Lobenstine, M. D	39
Preparation, Packing and Transportation of Foods (Report of Committee). Walter H. Lipman, M. D. Chairman	108
Present Sanitary Conditions (Guayaquil). Carlos V. Coello, M. D	188
Present Status of Our Knowledge of the Vitamins. H. C. Sherman, Ph. D., Chairman	908
Presidential Address. A. J. McLaughlin, M. D	985
Prevention and Cure of Rickets by Sunlight. Alfred F. Hess, M. D	104
Prevention of Disease Depts. Howard Childs Carpenter, M. D	932
Prevention of Tuberculosis (Infancy and Childhood). Allen K. Krause	101
Proper Cleansing of Glassware. Van Saun, Bancroft and O'Gorman	669
Proper Size of Sand for Rapid Sand Filters. W. H. Dittoe	44
Psychology in Rural Public Health Work. "Si Cology"	1038
Public Health Conserved Through Enforcement of Postal Fraud Laws. Lyman F. Kebler, M. D	678
Public Health Education (Chapter from Municipal Health Dept. Practice)	815
Public Health Nursing (Abstract from Municipal Health Dept. Practice)	941
Public Health Nursing Service in State Dept. Robt. G. Patterson, Ph. D	675
Public Health Work in Ceylon. S. T. Gunasekara, L. R. C. P., M. R. C. S	414
Radio Control (Editorial)	854
Rankin, W. S., M. D. Next Step for State Health Depts. (Symposium)	999
Rapid, Simple Method of Making Charts. D. H. de Paula Souza, M. D., Dr. P. H	757
Rawlings, Isaac D., M. D. Next Step for State Health Depts. (Symposium)	1008
Reasons for Failure to Control Diphtheria. J. W. Robinson, M. D	497
Recent Applications of Principles of Nutrition. H. Voille, M. D., and Theodore C. Merrill, M. D	568
Red Cross Societies' Typhus Research. Francis W. Palfrey, M. D	87
Registration Affairs (Report of Committee). William H. Davis, M. D., Chairman	576
Relation of Contaminated Ration to C. Botulinum (Lactating Animals). Graham, Schwarze and Boughton	659
Relation of Public Health Nursing to Other Phases of Work. Rose M. Ehrenfeld, R. N	218
Reports of Committees:	
Bathing Places. George W. Simons, Jr., Chairman	121
Canning. W. D. Bigelow, Chairman	591
Cold Storage. Peter H. Bryce, M. D., Chairman	382
Educational and Professional Standards for Vital Statisticians. Edwin W. Kopf, Chairman	1028
Industrial Hygiene (State and Provincial Health Authorities of N. A.) John T. Black, M. D., Chairman	839
Institution and Hospital Statistics. F. L. Hoffman, LL. D., Chairman	385
Medical Service (State and Provincial Health Authorities of N. A.) Matthias Nicoll, Jr., M. D., Chairman	742
More Accurate Population Estimates. George T. Palmer, D. P. H., Chairman	34
Municipal Health Dept. Practice. Louis I. Dublin, Ph. D., Secretary	7, 138, 577, 750, 759, 815, 891, 941
Nutritional Problems (Dried Milks). Henry C. Sherman, Ph. D., Chairman	113
Preparation, Packing and Transportation of Foods. Walter H. Lipman, M. D., Chairman	108
Registration Affairs. William H. Davis, M. D., Chairman	576
Reorganization. Henry F. Vaughan, D. P. H., Chairman	987
Retail Distribution and Marketing of Foods. Willard E. Ward, Chairman	290
Rural Health Administration. K. E. Miller, M. D., Chairman	316
Salary Standards. Carroll Fox, M. D., Chairman	693
School Health Program. C. E. Turner, M. A., C. P. H., Chairman	207
Standard Methods. Roger G. Perkins, M. D., Chairman	27
Standard Methods for Bacteriological Examination of Shellfish. Payn B. Parsons, M. D., Chairman	574
Standard Preparation of Diphtheria Antitoxin. P. G. Heineman, Ph. D., Chairman	503
Venereal Diseases. William F. Snow, M. D., Chairman	400

Page

Resolutions of the Semicentennial Meeting ... 56
Respiratory Diseases (Control of). W. A. Evans, M. D. ... 1015
Respiratory Diseases (Control of). Henry F. Vaughan, D. P. H. ... 1022
Results of a Health Program in a Summer Play School. Henry Harap ... 594
Rickards, B. R. Discussion (Education and Publicity) ... 286
Retail Distribution and Marketing of Foods (Report) ... 290
Rickets (Prevention and Cure). Alfred F. Hess, M. D. ... 104
Rivers, T. M., M. D. Influenza Meningitis ... 476
Roberts, B. E., M. D. Diphtheria Control ... 328
Robinson, J. W., M. D. Reasons for the Failure of our Methods to Control Diphtheria ... 497
Robinson, T. J., U. S. P. H. S. Financing a County Health Unit ... 843
Rose, Marie L. Discussion (Health Education and Publicity) ... 286
Routzahn, E. G. Introduction (Symposium on Motion Pictures) ... 269
Introduction (Symposium How to Further Progress in Health Education and Publicity) ... 279
Routzahn, Mary Swain. Discussion (Health Education and Publicity) ... 284
Royer, B. Franklin, M. D. Massachusetts-Halifax Health Commission ... 195

Salary Standards (Report of Committee). Carroll Fox, M. D., Chairman ... 693
Sanitary Engineering (Influence of). George W. Fuller ... 16
Sante. Life Saving or Public Health (Editorial) ... 229
Schevitz, Jules. 1897-1922 ... 520
School Health Supervision Based Upon Age and Sex, etc. S. Josephine Baker, M. D. ... 465
School Hygiene Under Boards of Education. Thomas E. Finegan, Ph. D., LL. D. ... 828
School Hygiene Under Boards of Health. S. Josephine Baker, M. D. ... 832
School Medical Inspection (A New Venture). George T. Palmer, D. P. H. ... 599
Schwarze, Herman. Relation of Contaminated Rations to C. Botulinum ... 659
Semicentennial Banquet ... 1
Shellfish (Report of Committee on) Payn B. Parsons, M. D., Chairman ... 574
Sherman, Henry C., Ph. D. Food and Health ... 294
Milks, Dried, Report of the Committee on Nutrition ... 113
Present Status of Our Knowledge of Vitamins ... 908
Should the Social Service Depts. in Children's Hospitals be Depts. for Prevention of Disease? Howard Childs Carpenter, M. D. ... 932
Si Cology. Psychology in Rural Public Health Work ... 1038
Simons, George W., Jr., Chairman. Report of Comm. Bathing Places ... 121
Simple Method for Anaerobic Cultivation in Petri Dishes. Morse & Kopeloff ... 119
Simplicity in Preparation of Blanks and Forms. Charles H. Lerigo, M. D. ... 116
Situation Abroad as Regards Typhus. Hugh S. Cummings, M. D. ... 91
Sketch Mapping for Public Health Problems. F. E. Hulse ... 1034
Skinner, W. W., D. Sc. Bottled Beverages and Soda Fountain Syrups ... 487
Smith, Charles Hendee, M. D. Hygiene of Cardiac Children ... 35
Stephen Smith, 1823-1922 ... 827
Smith, Stephen F., A. M., M. D., LL. D. Half Century of Public Health ... 3
Snow, William F., M. D. Discussion (Health Education and Publicity) ... 280
Report of Committee on Venereal Diseases ... 400
Soaps, Determination of the Value of Certain. Conover and Laird ... 602
Social Work and Public Health (Editorial) ... 702
Soda Fountain Syrups, Bottled Beverages and. W. W. Skinner, D. Sc. ... 487
Some Fundamentals in World Health Work. George E. Vincent, Ph. D. ... 674
Some Mortality Statistics of South American Republics. Frederick L. Hoffman, LL. D. ... 924
Some Observations on Sanitary Conditions of Confections. Tanner and Davis ... 605
Souza, G. H. dePaula, M. D., Dr. P. H. Rapid, Simple Method of Making Charts ... 757
Standard Methods for Bacteriological Examination of Shellfish. Payn B. Parsons, M. D., Chairman ... 574
Standard Methods (Report of Committee). Roger G. Perkins, M. D., Chairman ... 27
Standard Methods (Wider Development of.) Roger G. Perkins, M. D. ... 23
Starr, E. D., M. D. (Deceased) ... 705
State and Provincial Health Authorities of N. A. (Report of Committee) ... 742
Statistical Evaluation of Public Health Activities. Raymond Pearl, Ph. D., Sc. D., LL. D. ... 915
Stream Pollution (Naugatuck and Hockanum Rivers, Conn.) J. Frederick Jackson ... 124
Street, John P., M. S. Value of Cooperation (Food Manufacturers and Officials) ... 225
Study of the Practical Value of Frost Little Plate Method. Hatfield and Park ... 478
Summer Play School (Results of Health Program). Henry Harap ... 594
Symposiums—How to Further Progress in Health Education and Publicity ... 279
Motion Pictures ... 269
Next Step for State Health Depts. ... 995

Tanner, Fred W. Some Observations on the Sanitary Conditions of Confections ... 605
Tariff on Health (Editorial) ... 618
Thom, Charles, Ph. D. Botulism from the Regulatory Viewpoint ... 49
Tobey, James A. Pamphleteering and Public Health (Editorial) ... 148
Toward a Profession of Public Health (Editorial) ... 1040
Treatment of Swimming Pool Water (Ultraviolet Rays). W. F. Walker ... 320
Tuberculosis (Prevention of). Allen K. Krause, M. D. ... 101
Turner, C. E., M. A., C. P. H. Report of Comm. School Health Program ... 207
Discussion (Symposium on Motion Pictures) ... 270
Two Twilight Zones in Health Administration. E. R. Kelley, M. D. ... 563
Typhus Fever and Other Epidemic Diseases (Situation Abroad). Hugh S. Cummings, M. D. ... 91

Value of Cooperation Between Food Manufacturers and Food Officials. John P. Street, M. S. ... 225
Van Saun, Anna I. Proper Cleansing of Glassware ... 669

Vaughan, Henry F., D. P. H. Report of Committee on Reorganization 987
Plans for Control of Respiratory Diseases 1022
Vaughan, Henry F., D. P. H., to Edit Journal (Editorial) 1040
Vaughan, Victor C., M. D. National Research Council 746
Ventilation of Privies in Birmingham, Ala. W. A. Hardenbergh 943
Verbum Sap (Editorial) 855
Vincent, George E., Ph. D. Some Fundamentals in World Health Work 674
Violle, H. M. D. Applications of the Principles of Nutrition 568
Vital Statisticians (Opportunities of). W. A. Plecker, M. D 30
Vital Statistics (Chapter from Municipal Health Dept. Practice) 750
Vitamins (Present Status of Our Knowledge of). H. C. Sherman, P. D., Chairman 908

Walker, W. F. Treatment of Swimming Pool Water with Ultraviolet Rays 320
Ward, Willard E. Retail Distribution and Marketing of Foods 290
Water Supplies. (Chapter from Municipal Health Dept. Practice) 759
What Do You Say? (Editorial) 949
Whooping Cough, Mortality with Reference to. S. J. Holmes, Ph. D 378
Wider Development of Standard Methods. Roger G. Perkins, M. D 23
Wilcox, Harriet Leslie. Effect of Peptone Upon the Toxigenic Property of Diphtheriae No. 8 608
Wile, Ira S., M. D. The Healthful Home 295
Williams, Ennion G., M. D. Next Step in State Health Depts 1012
Winslow, C.—E. A., D. P. H. European Health Conditions 94
Ideal Health Dept. for a City of 100,000 891
Work of American Bakers' Association. Harry E. Barnard, Ph. D 494
Work of League of Red Cross Societies' Typhus Research Commission in Poland. Francis W. Palfrey, M. D 87
Work of Massachusetts-Halifax Health Commission. B. Franklin Royer, M. D 195

Yellow Fever, Campaign Against. Francisco C. Nájero, M. D 181
Yellow Fever (Guayaquil.) Carlos V. Coello, M. D 188

Ziegler, Charles Edward, A. M., M. D., F. A. C. S. How Can We Solve Midwifery Problem? 405

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Vol. XII JANUARY, 1922 No. 1

THE SEMICENTENNIAL BANQUET

THE fiftieth annual meeting of the American Public Health Association paid homage to its founder and first president, Dr. Stephen Smith, at a banquet in his honor on Wednesday evening, November 16, at the Hotel Astor, New York City.

A distinguished audience greeted Dr. Smith. The program of after-dinner speeches was made particularly memorable by Dr. Smith's participation in it.

Program

DR. MAZYCK P. RAVENEL, *Presiding*
DR. WILLIAM H. WELCH, *Toastmaster*

The Life and Works of Dr. Stephen Smith, DR. MAZYCK P. RAVENEL, *President, American Public Health Association.*

A Half Century of Public Health, DR. STEPHEN SMITH.

The Health of a City and Its Citizens, DR. ROYAL S. COPELAND, *Health Commissioner, City of New York.*

The World Movement for Public Health, DR. HERMANN M. BIGGS, *President, Board of Health, State of New York.*

Stephen Smith, the Man, DR. CORNELIUS WOLFKIN, *Pastor, Fifth Avenue Baptist Church;* DR. J. H. KELLOGG, *Battle Creek, Michigan.*

Lack of space prohibits the JOURNAL from printing all of the speeches of the evening.

The toastmaster's address follows:

DR. WELCH: Dr. Smith, Dr. Ravenel, Ladies and Gentlemen: I do esteem it a very great honor and a very great privilege to have been invited to occupy this position of introducing the speakers this evening. The occasion is one which is almost unique. We have assembled to pay tribute to a man for services in the most manifold direction, of the very highest order, and one who combines with that a measure of longevity which is a source of interest to the whole world.

Such is the combination we find in this man who is about to approach his one hundredth year; for I have just come from a country where he would be called one hundred years of age three months from now, and I think it is quite logical to regard the uterine period of life as a part of the span of life. (Laughter and applause.) When an infant is born in China, it is already one year old. (Laughter.)

It is an occasion, therefore, which, as this great audience here to-night testifies, is of singular, almost unique interest. In fact, I recall only one instance comparable to it, and that is the celebration in Paris at the centennial anniversary of the birth of that great chemist, Chevreux. Whether there is another instance comparable to this, I do not know. There have been other centenarians, but centenarians of comparable distinction is a matter which I think is at least open to question.

The occasion is, therefore, one of the greatest interest. I feel that I shall fill my position as toastmaster best by sub-

jecting our guest to-night to as short a period of speechmaking and to as few speeches as the occasion permits.

Dr. Smith has been interviewed many, many times for the secret of long life, but I have never heard him include in his prescription for longevity attendance upon public banquets. (Laughter.) He has attended many and survived them, but as I recall it, his prescription was very largely a proper diet taken in moderation. By a proper diet he meant grains, vegetables, and other foods, with meat included only occasionally. He adds that in addition to that prescription, one must have an incurable disease. He told me that for many years he had to take great care of his digestion and digestive organs, and he believes that this care has been a large contributing factor to his longevity.

In addition to that, I suppose the geneticists tell us he has made a very careful choice of his ancestors. (Laughter.) I imagine there is no other factor that counts quite as much in determining the span of life as a careful selection of one's ancestors.

It is my pleasant duty in welcoming you here to-night to spare our guest so far as is possible many speeches and long speeches. The freedom to print is freely granted to all speakers on this occasion. (Laughter.)

* * *

Dr. Mazÿck P. Ravenel read a paper on "The Life and Works of Dr. Stephen Smith." This is included in the Jubilee Volume as a part of Dr. Ravenel's paper on "The American Public Health Association, Past, Present, Future."

At the conclusion of the paper, Dr. Ravenel presented to Dr. Smith a copy of the Jubilee Volume, dedicated to him by the Association, and the gold Semi-centennial Medallion bearing his profile.

In accepting these tokens the guest of honor said:

DR. SMITH: Mr. President: Words would fail if I attempted to express my sense of the honor, respect and affection which these tokens confer. The Jubilee Volume contains a record of work in the public interest unequaled in its beneficient results in human history. This beautiful medallion will be a precious heirloom in my family, ever growing more precious as it passes from generation to generation, to the remotest period of time.

* * *

DR. WELCH: We have come to-night to see and to meet the guest of the evening, and the committee, instead of compelling him to listen to himself as the text of many addresses, has decided to make him the next speaker. In calling upon you, Dr. Smith, we, your colleagues, and friends and admirers, the citizens of this great city and state, and your fellow countrymen from far and near, bring you the homage of our sincere admiration, of our highest respect, and of our grateful appreciation.

We congratulate you upon your wonderful life now within fifteen months of the completion of one hundred years. We congratulate you upon this wonderful life so full of good deeds and of noble achievements; good deeds and noble achievements not for this generation alone, but for generations to come, and not in one field, but in many fields.

You have said, Sir, that you will consider yourself cheated if you do not attain one hundred years. How much more shall we be cheated if you do not reach this goal? And in this soul-stirring race, which we trust will run through its remaining span with your continued vigor and joy, you have all of our best wishes.

We hail you, Dr. Smith, as the eminent surgeon, the distinguished sanitarian, the public-spirited, the devoted citizen, the noble man who represents the ideals, the best ideals of our profession, and of citizenship. We hail you, Dr. Smith, our leader and our friend. (Prolonged applause while audience rises.)

A HALF CENTURY OF PUBLIC HEALTH

STEPHEN SMITH, A. M., M. D., LL.D.

Mr. Toastmaster, Members of the American Public Health Association, Honored President, Distinguished Guests, Ladies and Gentlemen:

Words would fail me if I attempted to express my appreciation of the kindnesses and the thoughtfulness that all of the officials and the whole Association have showered upon me, not only since I arrived here, but for many months past.

The tribute which your President, in behalf of the Association, has paid to me, has moved me to the very depths of my being. It is a tribute to the accomplishments of the whole Association, through the entire fifty years of its career, rather than to me personally, although I accept it as my own. And now, this further expression of your affection and esteem, this beautiful and enduring symbol which will, for all time, show future workers in public health how kindly you thought of me!

All I can say is a simple "Thank You." In all my career no honor has come to me that I will cherish more than this.

I regard it as an act of a gracious Providence that I have the privilege of attending and participating in the celebration of these quite unique anniversaries.

To attend the semicentennial anniversary of the Public Health Association and my own approaching centennial, at one and the same time, is an event not hitherto recorded.

Few, if any, of my associates in the great struggle which gave to New York City the Metropolitan Health Law and to the world the American Public Health Association are still living, but "their works do follow them."

The health law and the Public Health Association, united as they were in their primary functions of establishing scientific sanitation, planted the tree whose leaves are for the healing of the nations. I may say with Job's messengers, "I only am escaped alone to tell thee." New York City, then recorded as one of the unhealthiest cities of the civilized world, took the initiative steps in introducing scientific civic sanitation. The code of health ordinances which the metropolitan boards created is unrivaled. The results of its operations in reducing the death-rate were simply incredible. The health commissioner characterized it as "tremendous."

The death-rate gradually fell from 38 per cent, as it was when I began, to 12 in the 1,000 population, a saving of 70 per cent of the lives formerly sacrificed. But this is not all that the new system is accomplishing in conserving the public health of New York City, for only recently the health commissioner announced that the annual death-rate for a certain week had been as low as 8 per 1,000 of the population, which is not only a tremendous result, but it places New York City second, if not first, among the healthiest cities of over a million population in the civilized world.

These officially authenticated facts suggest new and important questions which will confront the managers of the Association as it begins its next half century. The steady fall of the death-rate, until it has nearly reached the vanishing point, suggests the possibility of its passing that point. What a tremendous result! A city of six millions population without a death! Is such a result possible? Evidently this question must be answered in the next half century of the life of this Association.

It is interesting to notice that the tremendous decrease in the death-rate occurred during the increase of the population of the city from one to six millions. How completely does this fact controvert the recent public statement of a prominent clergyman of this city that the "nerve-racking life of New York is not conducive to health and longevity."

The very opposite of this statement proves to be true. It is among the people most engaged in the nerve-racking activities of business that we find vigorous health. Few, if any, persons die of too much activity, while thousands lose health and life by the slowly disintergrating process of idleness.

The most important feature of our celebration of the semicentennial of the Public Health Association centers in the record which the second semicentennial can, or possibly will, make in view of the great accomplishments of the first half. From a somewhat careful review of the situation, I anticipate that the second fifty years of activity of the Public Health Association will excel the first in its life-saving record.

This opinion is based on the quite universal movement among the people to encourage all forms of organization for the protection and promotion of the public health. The child-welfare societies are saving the babies even from their prenatal state through babyhood. Childhood in its development is becoming more and more subject to expert supervision at every stage. The life extension societies and rural clinics are subjecting every grade of the people, and at every age, whether sick or well, to rigid diagnostic examinations in order to discover incipient disease and anticipate treatment in its early stages and most curable period. The domestic pestilences, measles, scarlet fever, whooping cough, are prevented by serum therapy. The New York City sanitary officials are proposing to prevent all preventable diseases. These are but a few of the evidences of the remarkable interest of the people in the public health all along the line, from babyhood to old age. Even old age is classified as a disease by the great scientist, Metchnikoff, of the Pasteur Institute of Paris.

Perhaps the most important impending event favorably affecting the public health in the next half century will be the proposed reorganization of our system of medical education. The great universities of this country have now mutually decided to reorganize their medical schools on the basis of scientific precision hitherto unknown. Harvard, Yale, Columbia, Pennsylvania and Chicago are raising endowment funds for that purpose, incredible in their amounts. Graduates from these schools will have a far higher qualification for the duties of practical and preventive medicine than have hitherto been known. Sanitary officials will be of the highest grade of qualification, and the great medical profession will coöperate in the enforcement of preventive measures in the homes of the people. A most effective measure in the prevention of crime, disease and human suffering is the prohibition law, rigidly enforced, by which alcohol is relegated to its proper place as a medicine, to be used only on the restricted prescription of physicians. Though not yet thoroughly enforced, we are beginning to hear of the marked diminution of crime, insanity and violence, hitherto due to the use of alcohol as a beverage. In a few years of strict enforcement of prohibition I look for a tremendous diminution of crime, sickness and death-rates.

One of the most important and far-reaching public-health measures for the future is the standardization of the health value of every variety of human food, and precise directions as to their uses in health and disease. Dr. John Harvey Kellogg, of the Battle Creek Sanitarium, in his monthly journal, *Good Health*, has been a pioneer in giving the people such accurate familiarity with the special forms of ordinary foods that they are able to adapt foods to their proper daily uses. I learn, also, that there are a score of women's magazines with a combination monthly circulation of fifteen million copies each issue which print much authoritative and expert food and dietetic advice for their readers. "As a man is what he eats," this knowledge is already a powerful factor in promoting the public health. A century ago, this knowl-

edge was unknown even to eminent specialists, as appears from the following incident related by the first Governor Dix. When a young man (1802) he suffered from dyspepsia and went abroad to consult Abernethy of London, the world's greatest authority on diseases of the stomach. In the course of the consultation, Dix inquired, "What shall I eat?" The great Scotch surgeon, who was noted for his laconic speech, and the free use of expletives, replied, "Why, damn it, I don't know; you and God Almighty only know what you should eat."

In confirmation of the belief that this Association has awakened a remarkable interest in public health among the people of this and other countries, I may refer to the following personal experience:

In anticipation of this anniversary the *American Magazine* published a somewhat florid sketch of my life which attracted wide interest on account of my age and profession, and I have been in daily receipt of letters from all parts of the country. Many wish to know the secret of my long life, what I eat at breakfast, dinner and supper; whether I drink tea and coffee; if I use tobacco, wines, alcoholic liquors, and what brand of each I recommend. The writers assume that I have reached my present age because of some special mode of living which they desire to adopt. It is interesting to notice what trivial matters worry people.

A lady cannot digest eggs: Advice: "Cut them out." Another cannot digest milk: Advice: "Drink much more milk." A Texan yawns too much: Advice: "Walk a mile, thus pumping dead air out of and fresh air into your lungs." A young woman has weak ankles: Advice: "Change your peg-heel and pointed-toe shoes for your grandmother's common-sense shoes." Etc., etc.

In view of these evidences of a great awakening of the people of the entire country to the importance of health and to the fact that it is their first duty to secure it, I would suggest that it is incumbent upon this Association to seize the opportunity of placing the public health on a more scientific basis. We have too long been content with the false code of the Mosaic law that limits life to three-score years and ten, with a possibility of reaching four-score years.

The falsity of this law was verified by Moses himself, who lived forty years over his own allotted time and died apparently in good health, for it is written, "His eye was undimmed and his natural force unabated."

We are living under entirely different conditions, with a basic principle of life fixed by the unalterable precision of science. Biology teaches that the normal and potential life of man is one hundred years; that every child born is adapted in physical construction and function to live a century. We must, therefore, infer that, in the natural order of life, all deaths occurring at an earlier age are due to conditions existing which are not compatible with the construction and functions of the human organisms. In these scientific facts we find the present duties and opportunities of this Association. I submit, that on this Jubilee day, we should inaugurate the new era in life saving by moving forward thirty years, our standard for the length of life, and we should summon the sanitary officials and the people to rally round that standard, now permanently fixed by the immutable deductions of science.

Let us prepare a new standard of our work, detailing in simple language which all can understand, this gospel of lengthened life—life that suggests immortality. We seem to be standing on the threshold of a warless world. The nations are vying with each other in getting rid of their implements of war and eradicating the causes of war.

Let us, then, at this most auspicious time, send our messengers into every nook and corner of the whole wide world, proclaiming in schools, churches and legislative halls, by word and press and film, this new scientific standard of long life.

Thus shall we fulfill our duties to the Public Health Association and make its centennial, fifty years hence, even more glorious with its achievement than this semicentennial celebration of its proud record of the past fifty years. (Prolonged applause.)

* * *

In the course of the evening letters from President Harding were read by Dr. Lee K. Frankel and Dr. Royal S. Copeland, of which the following are extracts:

In connection with the semicentennial meeting of the American Public Health Association, I have just learned that a dinner is to be given to Dr. Stephen Smith, the only living survivor of the group which founded the Association, who, in his ninety-ninth year, is still taking an active interest in the work. Dr. Smith's own longevity record is certainly one calculated to impress the practicability of public-health enterprises.

I would be glad, if, at the dinner in his honor, you will extend my congratulations to him and best wishes that he may enjoy many more years of active usefulness.

* * *

It is with much satisfaction that I take the occasion to extend greetings to the American Public Health Association. My understanding is that it is the oldest of like organizations and nearly everybody knows something about the distinguished services it has rendered and the long list of eminent men that have been affiliated with its efforts. Through such work as it has so long conducted, there has been distinguished achievement on behalf of the public interest. Knowing that the work will be carried on, I want to record my wishes for the utmost measure of public coöperation and support in everything that it may undertake.

Very sincerely,

WARREN G. HARDING.

□

What Are the Functions of State Health Departments?—By state sanitation is meant the efforts which state governments exert to prevent insanitary or uncleanly conditions of human environment which tend to impair the health or which are prejudicial to the comfort of the people. Health should be measured both negatively in terms of reduction of sickness and death and positively in the promotion of physical efficiency and ability to enjoy life. "Comfort," in the broad sense, is an important element in health.

The functions of government are force, manifested through the police power, and service, which does for the people those things which the government can do better or more effectively than the people themselves. State boards of health should be concerned with both in a balanced combination. In former years health officials dealt almost solely with matters of police power, such as abatement of nuisances, quarantine of infectious diseases, fumigation, food inspection, and the like. To-day the tendency is in the opposite direction and has sometimes gone to an extreme in fostering welfare activities, such as maternity benefits, various types of clinics and dispensaries, public-health nursing, popular education, etc.

The legitimate functions of state boards include semi-legislative and -judicial functions, such as sanitary codes, regulations for reporting infectious diseases, etc.; laboratory work, including preparation and distribution of vaccines and antitoxins, bacteriological and serological diagnoses of certain diseases, including tuberculosis, venereal diseases, etc.; the giving of friendly advice regarding matters endangering the public health and the promotion of standard methods of procedure without servility; inquiry, investigation, and survey, followed by adequate tabulation and interpretation of facts, as the basis of sound administrative policies and informative official reports.

A great variety of problems—those of water supply and sewerage—while of an engineering nature, have developed as adjuncts of state health departments and should be kept there because of their clear relation to the exercise of the police power in the interests of public health. Their laboratory work is distinct from other types. The sanitary engineer should, therefore, be recognized as the logical head of one of the independent divisions of state boards.—Prof. George C. Whipple, *Public Health Reports*, Nov. 25, 1921, Vol. 36, No. 47, 2879-92.

FIRST REPORT OF THE COMMITTEE ON MUNICIPAL HEALTH DEPARTMENT PRACTICE OF THE AMERICAN PUBLIC HEALTH ASSOCIATION, NOVEMBER, 1921

This is the first installment of the First Report of the Committee on Municipal Health Department Practice, presented at the third general session, Fiftieth Annual Meeting, American Public Health Association, New York City, November 17, 1921. The second part will be published in the February issue. The Committee is planning to issue supplementary reports for each main division of the activities covered

A. Introductory

THE need of authentic information on the practice of municipal health departments of American cities has long been recognized by all engaged in public-health work. It is generally known that a great variety of procedures are in effect; that the organization of the health departments differs in different communities; that the amounts spent per capita for any branch of health service vary considerably and that, in other respects, few standards are available to health officers who would pattern their departments after those which predominate in American practice or achieve most satisfactory results. It was thought that the collection of data as to the current practice of large municipal health departments would repay the effort and that perhaps, out of such an investigation it would be possible to discover the best procedures and to forward the movement for the simplification and standardization of health department practice in our cities. With this in mind, the Metropolitan Life Insurance Company in May, 1920, expressed its willingness to finance the cost of such an investigation, provided that the American Public Health Association would be responsible for the gathering of the information and for the preparation of the report.

The Association, acting through its president, Dr. Rankin, accepted the offer of the Metropolitan and appointed a committee consisting of: Prof. C.-E. A. Winslow, chairman, New Haven, Conn.; Dr. Charles V. Chapin, Providence, R. I.; Dr. Wade H. Frost, Washington, D. C.; Dr. Donald B. Armstrong, Framingham, Mass.; Dr. Allen W. Freeman, Baltimore, Md., and Dr. Louis I. Dublin, New York City, who was elected secretary of the committee. Later Dr. Lewis R. Thompson, of the United States Public Health Service, was added to the committee. For the purposes of this work, the company appropriated a sum of $5,000, and made available, in addition, such assistance of a clerical character as could be given by the Statistical Bureau of the Home Office in the tabulation of the results and in the preparation of the report.

The committee at the very outset limited its inquiry to cities of 100,000 population or over, according to the 1920 census. A few cities close to the lower limit were included wherever the health activities appeared to be of sufficient interest to justify the inquiry. A total of 83 cities were in this way included. The committee prepared a schedule covering practically all phases of municipal health department procedure, and occupying 24 pages, each 12 by 18 inches. It appeared essential that the information should in all cases be obtained by the visit of a personal representative of the committee to each city. Otherwise, many of the questions would have remained unanswered, others would have been misunderstood, replies from various cities would not have been made on the same basis, and the results would have been vitiated through lack of comparability or of reliability. It was, therefore, decided that the surveys should be conducted by a small number of investigators acting for the committee, each using the schedule in the same way and following certain rules and interpretations of the items as agreed upon. The members of the committee each undertook to be responsible

for a group of cities in their immediate vicinities. The Surgeon General of the Public Health Service, Dr. Cumming, was interested in the project and very generously assigned Dr. Lewis R. Thompson of the Service to the committee for a period of ten weeks, in which time he surveyed sixteen cities. In addition, the Surgeon General directed five members of the Service staff, located in various parts of the country, to coöperate with the committee in completing the schedules for nine cities in their immediate vicinities. Altogether, a total of 25 surveys out of the 83 were completed by members of the staff of the Public Health Service. The American Red Cross also coöperated most cordially, placing Mr. Homer N. Calver at the committee's disposal for the survey of five cities. The thanks of the committee are hereby tendered to the Surgeon General, to the several members of the Public Health Service, to the American Red Cross, and to the other volunteers whose coöperation has made this report possible.

The remaining cities were covered by the various members of the committee, their associates, and by various employees of the committee. The following list shows the cities and the persons responsible for the individual surveys.

CITIES STUDIED AND NAMES OF INVESTIGATORS

Dr. C. C. Applewhite, United States Public Health Service:

Atlanta, Ga.	April 4, 1921
Jacksonville, Fla.	April 1, 1921
Savannah, Ga.	March 29, 1921

Dr. Allen W. Freeman, Dr. Charles Armstrong and Dr. E. G. Starr:

Akron, O.	January 24, 1921
Canton, O.	January 22, 1921
Cincinnati, O.	February 15, 1921
Cleveland, O.	February, 1921
Columbus, O.	January, 1921
Dayton, O.	February 10, 1921
Toledo, O.	February 18, 1921
Youngstown, O.	January 31, 1921

Dr. Halsey J. Ball:

Utica, N. Y.	July, 1921

Dr. Wade H. Frost and Mr. Homer N. Calver:

Baltimore, Md.	Mar. 9-April 9, 1921
Norfolk, Va.	April 1-4, 1921
Richmond, Va.	March 29-31, 1921
Washington, D. C.	March 28, 1921
Wilmington, Del.	March 23-25, 1921

Dr. Charles V. Chapin:

Fall River, Mass.	April 21, 1921
Providence, R. I.	February, 1921

Dr. L. I. Dublin:

Los Angeles, Cal.	September 20, 1920
Oakland, Cal.	September 25, 1920
San Francisco, Cal.	September 17, 1920
Seattle, Wash.	September 30, 1920
San Diego, Cal.	October 22, 1920
Portland, Ore.	October 16, 1920

Dr. Charles C. Duryee:

Schenectady, N. Y.	January 24, 1921

Mr. W. T. Fales:

Camden, N. J.	June 9, 1921
Paterson, N. J.	June 15, 1921
Scranton, Pa.	June 11, 1921

Mr. A. W. Fuchs, United States Public Health Service:

Memphis, Tenn.	March 24, 1921
Nashville, Tenn.	March 29, 1921

Dr. Ralph Hendricks:

Spokane, Wash.	June 30, 1921

Prof. C.-E. A. Winslow and Mr. I. V. Hiscock:

Bridgeport, Conn.	December 15, 1920
Hartford, Conn.	November 17, 1920
New Haven, Conn.	December 31, 1920

Dr. F. E. Harrington:

Minneapolis, Minn.	March 24, 1921

Dr. Henry F. Vaughan and Dr. F. M. Meader:

Detroit, Mich.	April 18, 1921
Flint, Mich.	March 3, 1921
Grand Rapids, Mich.	February 3, 1921

Dr. John L. Rice:

Albany, N. Y.	April 6, 1921

Dr. W. K. Sharp, Jr., United States Public Health Service:

Birmingham, Ala.	April 11-14, 1921

Mr. R. E. Tarbett, United States Public Health Service:

Indianapolis, Ind.	May 16-19, 1921
Louisville, Ky.	May 25-28, 1921

Dr. L. R. Thompson, United States Public Health Service:

Chicago, Ill.	March 28, 1921
Dallas, Texas	February 28, 1921

Denver, Colo.	January 31, 1921
Des Moines, Iowa	January 23, 1921
Duluth, Minn.	March 25, 1921
Fort Worth, Texas	March 3, 1921
Houston, Texas	February 24, 1921
Kansas City, Kans.	March 14, 1921
Kansas City, Mo.	March 10, 1921
Oklahoma City, Okla.	March 7, 1921
Omaha, Neb.	January 27, 1921
Salt Lake City, Utah	February 14, 1921
San Antonio, Texas	February 21, 1921
St. Louis, Mo.	March 17, 1921
St. Paul, Minn.	March 23, 1921
Milwaukee, Wis.	January 22, 1921
MR. MAYO TOLMAN:	
Boston, Mass.	February 8, 1921
Buffalo, N. Y.	January 3, 1921
Cambridge, Mass.	March 22, 1921
Elizabeth, N. J.	December 22, 1920-February 2, 1921
Erie, Pa.	March 15, 1921
Jersey City, N. J.	December 16, 1920
Lawrence, Mass.	March 11, 1921
Lowell, Mass.	March 8, 1921
Lynn, Mass.	March 4, 1921
New Bedford, Mass.	March 22, 1921
New York, N. Y.	December 15, 1920
Philadelphia, Pa.	January 15, 1921
Pittsburgh, Pa.	January 5, 1921
Reading, Pa.	January 17, 1921
Rochester, N. Y.	December 29, 1920
Somerville, Mass.	February 28, 1921
Springfield, Mass.	March 15, 1921
Syracuse, N. Y.	December 27-28, 1920
Trenton, N. J.	July 29, 1921
Worcester, Mass.	March 17, 1921
Yonkers, N. Y.	January 31, 1921
Newark, N. J.	June 17, 1921
DR. C. H. VROOMAN:	
Tacoma, Wash.	April 4-5, 1921
DR. C. L. WILLIAMS, United States Public Health Service:	
New Oreans, La.	May 23, 1921

B. GENERAL CONCLUSIONS

The analysis of the data obtained in our survey proved to be a task of considerable magnitude, since the reports from the whole group of 83 cities included altogether more than 50,000 items. In many instances further correspondence with health officers was required after they had courteously devoted much of their time to the surveyor who had visited them in person; and while expressing our very warm thanks to the members of this Association who have aided us, we would warn them that we may yet have to come back for more.

At the present time it has only been possible to prepare a brief summary of the more important of our findings which have been placed in your hands. Special credit is due to Mr. W. T. Fales and Mr. I. V. Hiscock for loyal service in tabulating data and in digesting the material upon which this summary is based. We hope to devote the better part of the coming year to the further analysis of our data and the preparation of a second report covering in detail each of the main functional activities, and of a third report indicating the principal points in the health department practice of each of the cities studied.

As its first report, the committee presents a summary of its findings under the following main divisions:

I. The Health Board and the Health Officer.
II. Expenditures of Health Departments.
III. Control of Communicable D ease.
IV. Tuberculosis.
V. Venereal Di
VI. Infant Hy
VII. School M
VIII. Industr
IX. Specia
X. Publi
XI. Pub
XII. M
XIII. F
XIV. S
XV.
XVI.
XVII
XVI

Even this summary is too long and too statistical to read in full. We hope you may be interested to study it at leisure; but at present it is necessary only to review in the briefest fashion the most significant of the results obtained.

The crux of good health administration is a good health officer well trained, well paid, efficient and secure in tenure. Three fourths of the health officers of the larger cities are physicians and while only four have a special public-health degree the greater proportion are well equipped from the standpoint of practical experience. Tenure of office appears to be reasonably secure in most instances but the salaries paid are markedly inadequate, but 32 per cent of the cities reporting paying their health officers salaries of $5,000 or over, while $4,000 would be about a median figure.

The total appropriations for the health department vary from 22 cents to $3.18 per capita, and average 98 cents. Both the extraordinary variation and the relatively small amount of these appropriations are significant, particularly when we consider that for strict public-health purposes (excluding contagious disease hospital maintenance, refuse disposal, etc.), the per capita expenditure averages only 52 cents. In the allotment of this th budget, food inspection and sani- tion receive too large a share, is, venereal disease and eive far too small a by a standard based of human life. ture in regard to able disease is which leads to od of isolat- erent com- communi- mplete in find that ing still d that ultural ts. cities report a specific appropriation for tuberculosis work, almost all health departments are attacking this most fundamental problem. Reporting is still very incomplete and in spite of the encouraging development of clinic and nursing service during recent years, the ratio of physicians and nurses is still far too low for ideal results. The low ratio of clinic visits per patient is most significant. Hospital and sanatorium beds are relatively well provided but cases are generally admitted in a stage so late as to be incurable.

The development of venereal disease clinic service is one of the most encouraging facts revealed by our survey, practically every large city being now provided with service of this character.

Infant hygiene work is also done in all of the cities studied, though less than half the health departments have a distinct division of child hygiene. Private agencies are of course doing notable work in this field. The lack of good obstetrical care, of which the rural districts complain so loudly, is to be noted even in our large cities. Better control and training of midwives is an urgent need.

Medical school inspection is carried out in more than half the cities by the board of education rather than the board of health, creating an undesirable conflict of authority, particularly where the health department does inspect children in the parochial schools. The medical and nursing staff is generally inadequate for the most effective work (one physician to 10,000, one nurse to 4,000 children).

Industrial hygiene is an almost undeveloped field for the municipal health department except in two or three of the largest cities.

Public-health nursing is still largely a function of private agencies, although public-health nursing under the health department is growing rapidly so that over a third of the total service of this kind is now furnished by them. Special-

ized nursing is still more common than generalized nursing.

Public-health laboratory service is generally well developed and under good expert direction. The need of the moment is to persuade the physician to make a fuller use of the facilities at his disposal.

Milk control is exercised by practically all cities, but it is surprising to find that pasteurization is not yet general except in the larger cities, and that only some 30 cities have a grading system.

Food and drug inspection is almost always an important function of the health department. It will be desirable in the future to develop more complete systems for the medical examination of food handlers, although it is encouraging to note that 13 cities report 500 or more such examinations per year.

In connection with the control of general sanitation, the energies of the municipal health department are devoted largely to investigating complaints, which task, as suggested, consumes a regrettably large proportion of the department budget. About one third of the cities include plumbing inspection in their activities and a few are charged with the removal of garbage and refuse.

Water supplies are now generally municipally owned and adequately safeguarded in the large cities. The extension of sewerage seems, however, to be a real sanitary necessity in many communities and the better disposal of sewage is often a pressing need.

While public-health educational facilities are becoming more and more widely available, they are not as yet reaching the general public to a productive degree.

Much progress has been made in the use of vital statistics as a part of the health service, but there is still need for the standardization of procedures in the tabulation and analysis of results.

The American municipal health department is an institution whose duties are expanding and whose functions are changing year by year with the growth of the public-health science on which its practice rests, and with the increasing demand from the public for health service of a broad and constructive type.

The health officers of the large cities and of the small cities are striving to realize new possibilities and to meet new demands with energy and enthusiasm; but they realize quite as well as the members of this committee that the ideal and perfect health department is yet far to seek. The best source of guidance is the experience of our fellows. We hope in future reports, by selecting the best procedures in each line of work actually carried out in a given city, and by combining the highest attainments of each of the 83 cities which coöperated in this study, to present to you a practical ideal which may help in the exercise of the splendid responsibility which rests upon your shoulders as the chosen guardians of the public health of the people.

C. SUMMARY OF RESULTS

1. THE HEALTH BOARD AND THE HEALTH OFFICER

1. The Board of Health.

Public-health work is under the supervision of a special board of health in 42 of the 83 cities studied, the board being composed of from 3 to 13 members. The term of the members varies from 1 to 12 years and special professional qualifications are required for membership in 29 cities. Compensation for board members is provided in 12 cities.

2. Appointment and Qualifications of the Health Officer.

The health officer is appointed by the mayor in 28 out of 75 cities, by the board of health in 24 cities, by some other board or administrative officer in 18 cities and directly by the city council in 7 cities; by civil service in one. In 48 cities he must be a physician, and 64 of the health officers actually possess the medical degree, 4 the degree of Doctor of Public Health, 3 law degrees and 2 engineering degrees. In a group of 64 cities, 31 health officers

(42 per cent) have had over 15 years' experience in public-health work and 8 more (11 per cent) have had from 10 to 16 years' experience.

3. Tenure of Office and Salary.

The position of health officer is protected by civil service regulations in 13 cities. Forty cities report a definite legal term of service for the health officer, ranging from 1 to 5 years. In 27 cities the term of office is indefinite. Sixteen health officers have held their present positions for 15 years, 11 for 10 to 15 years, and 5 from 5 to 10 years. It is of some interest to note in this connection that in 73 cities where the information could be obtained, 47 per cent of the health officers are 50 years old and over.

The health officer is reported as doing private practice in one city of the first group (population 500,000 and over), in one city of the second group (population 250,000 to 500,000) and in 21 of the third group (population less than 250,000).

The largest cities, those having more than 500,000 population, as we should expect, pay proportionately higher salaries than do the smaller cities. Thus we find that 75 per cent of the larger cities for which we have data pay their health officers over $5,000 a year; 60 per cent of the cities of population of 250,000 to 500,000 pay their health officers $5,000 or more, and 17 per cent of the last group of cities pay their health officers $5,000 or more for an annual salary. In the first group of cities the range is from $2,200 for a part time health officer to $10,000 for a full time officer. In half the cities of this group the salary is $7,000 or over.

In cities of the second group, the range is from $4,000 in three cities to $6,500 in one city, six cities paying a salary of $5,000 or over.

In cities of the third group, the range is from $1,200 for a part time health officer to $6,000 in one city, 18 cities paying $4,000 or over, and 18 paying less than $3,000, the health officers, however, being on part time except in two instances.

The following table indicates the detailed situation in the 78 cities for which data were available.

NUMBER OF CITIES CLASSIFIED BY WHOLE AND PART TIME SERVICE AND SALARY OF HEALTH OFFICER.

Cities of population	Total Cities	No. of Cities Health Officer		Cities in which salary of Health Officer is			
		Whole time	Part time	$7,500 and over	$5,000-$7,000	$3,500-$4,999	Under $3,500
500,000 and over	12	11	1	6	3	2	1
250,000 to 500,000	10	9	1	0	6	4	0
Under 250,000	54	31	23	0	9	17	28

II. EXPENDITURES OF HEALTH DEPARTMENT

1. Gross Expenditure.

The gross expenditure of 79 municipal health departments for all purposes ranges from 21.6 cents per capita to $3.18 per capita. The mean is 97.9 cents, the median, 65.6 cents. Fifty per cent of the cities show expenditures between 46.9 and 94.1 cents per capita.

Eighty-two per cent of the health department expenditure in 72 cities is for salaries.

The gross health department expenditures as specified above may be subdivided (for 79 cities) as follows:

A. Health service (exclusive of contagious disease hospitals), 54 per cent.

B. Hospital service (including general, special and contagious), 35 per cent.

C. Garbage and refuse disposal, 8 per cent.

D. Miscellaneous services (morgue, paving, etc.), 3 per cent.

Hospitals of some sort are maintained by the health department in 54 cities, and money is being expended for garbage and refuse disposal in 13 cities.

2. Expenditures for Health Service.

An average expenditure of 52.4 cents is reported for strictly defined health service (exclusive of contagious disease hospitals) in 79 cities. The range is from 11.9 cents in Scranton to 104.9 cents in Bridgeport. Fifty per cent of the cities spend between 33.9 and 58.2 cents per capita. One half of the cities spend less than 43.9 cents per capita.

3. Functional Distribution of Expenditures.

In 72 cities it was possible to distribute the expenditure for health service according to the kind of work performed. The results, as indicated in the following table, give us a very interesting picture of the direction which official health activity is taking at the present day.

It should be understood that all the average figures presented in this summary report are obtained by comparing the total population of all the cities in a given group with the total expenditure or total personnel for the same group. The table therefore presents a picture of the functional classification of health work for the entire population of 72 cities. If we estimated the per capita cost of a service only for the cities where such a service is rendered, the figure would sometimes be very different. Thus the average per capita cost of public-health nursing in 38 cities which maintain and furnish separate public-health nursing budgets is 9.5 cents. Our data will be analyzed from this latter standpoint in succeeding sections where the figures are significant.

III. CONTROL OF COMMUNICABLE DISEASES

1. Organization.

The control of communicable diseases is carried out in the cities studied either (a) by a distinct bureau devoted specifically to that purpose, (b) by a division in a bureau of medical inspection, dealing also with such problems as infant or school hygiene or (c) in the smaller cities, by a medical inspector. Actual field work is carried out mainly by physicians in 10 cities, by public-health nurses in 20 cities, by sanitary inspectors

FUNCTIONAL CLASSIFICATION OF HEALTH DEPARTMENT EXPENDITURE

	Per Capita Expenditure	Per Cent of Total Expenditure For Health Work
Administration	$.053	11.1
Communicable disease control	.073	15.2
Tuberculosis	.015	3.1
Venereal disease	.012	2.5
Infant welfare	.036	7.5
School hygiene	.047	9.8
Public-health nursing*	.016	3.3
Laboratories	.033	6.9
Food inspection	.067	14.0
Sanitary inspection	.091	19.0
Vital statistics	.015	3.1
Miscellaneous	.021	4.4
Total	.479	99.9

*Where special divisions of public health nursing are maintained.

in 28 cities and by a combination service in the remaining instances.

2. Notification.

Typhoid fever, diphtheria, smallpox, scarlet fever, epidemic cerebrospinal meningitis, and poliomyelitis are reportable in all of the 83 cities. Mumps is not reportable in four cities. Chickenpox is not reportable in two cities, influenza not reportable in five cities, pneumonia not reportable in nine cities, and malaria not reportable in twenty cities. Hookworm disease appears to be reportable in all the Southern cities but four.

3. Investigation and Verification of Cases

Practically all cities report the routine visitation of typhoid fever, diphtheria, smallpox, epidemic cerebrospinal meningitis and poliomyelitis, conducted in less than half the cities by physicians. Tuberculosis cases are visited in 50 cities, in 40 instances by public-health nurses only.

Smallpox and chickenpox are the only two diseases the diagnoses of which are commonly verified. These are verified in 61 cities out of 75 for smallpox and in 41 cities for chickenpox (often only in adults). Diagnoses of other communicable diseases are in most cases only made upon request of attending physicians.

Data in regard to laboratory diagnosis are presented in Section XI later on.*

4. Isolation.

The more severe diseases, scarlet fever, diphtheria, and smallpox, are nearly always subjected to absolute isolation, that is, cases are segregated in a separate room with an attendant who has limited contact with the rest of the household. In a second group, including epidemic meningitis and poliomyelitis, we find that most cities report absolute isolation but that a few cities report modified isolation, and still other cities no isolation at all. In typhoid fever, modified isolation is more common than absolute isolation. For other diseases, modified isolation was generally reported.

*To appear in the February issue of the JOURNAL.

5. Hospitalization.

For the 36 cities reporting the actual number of cases of communicable disease hospitalized, we find that 54 per cent of smallpox cases, 42 per cent of typhoid cases, 36 per cent of epidemic cerebrospinal meningitis cases, 23 per cent of diphtheria cases, 19 per cent of poliomyelitis cases, and 23 per cent of scarlet fever cases were hospitalized. For mumps and chickenpox the figure falls to 4 per cent; for measles and whooping cough to 3 per cent.

6. Placarding.

It appears to be an almost universal practice to placard either the house or in the case of apartment houses, the apartment, for diphtheria, smallpox and scarlet fever. Typhoid fever is reported as placarded in 34 cities.

Measles	is placarded in 53 cities.
Mumps	is placarded in 22 cities.
Chickenpox	is placarded in 38 cities.
Meningitis	is placarded in 62 cities.
Poliomyelitis	is placarded in 71 cities.
Whooping cough	is placarded in 41 cities.

Other diseases are placarded only in rare instances.

7. Isolation Period.

The isolation period is terminated in different diseases as follows:

a. Smallpox: Definite time limit* (14-30 days, generally 21 days), 28 cities; recovery or desquamation without time limit, 42 cities; no data, 13 cities.

b. Chickenpox: Time limit (7-21 days, usually 14 days), 38 cities; desquamation, or recovery, 21 cities; no isolation, 10 cities; no data, 14 cities.

c. Scarlet Fever: Time limit (21-42 days, usually 30 days), 72 cities; desquamation or recovery, 8 cities; no data, 3 cities.

d. Diphtheria: Time limit alone, 5 cities; time limit and negative cultures, 26 cities; negative cultures without time limit, 50 cities; no data, 3 cities; no culture, 1 city. Time limits vary from 9 to

*Where a time limit is set, cessation of clinical symptoms is also usually assumed.

21 days, usually 14 days. Where culture release is used, with or without a time limit, 3 cities require one negative culture, 65 cities two negatives, 3 cities three negatives, and in 3 cities the number of negative cultures is not stated.

e. Typhoid Fever: Recovery, 37 cities; time limit, 6 cities; cultural release, 16 cities (in one case combined with time limit); no isolation, 20 cities; no data, 4 cities.

f. Epidemic cerebrospinal meningitis: Time limit (from onset), 32 cities (10-42 days, usually 21 days); recovery, 13 cities; time limit dating from recovery or normal temperature, 7 cities; cultural release, 13 cities; no isolation, 2 cities; no data, 16 cities.

g. Poliomyelitis: Time limit (from onset), 55 cities (14-42 days, usually 21 days); recovery, 10 cities; time limit dating from recovery or normal temperature, 2 cities; no isolation, 2 cities; no data, 14 cities.

h. Measles: Time limit (5-21 days, usually 7 or 14 days), 59 cities; recovery, 6 cities; seven days after rash disappears, 2 cities; no isolation, 7 cities; no data, 9 cities.

i. Mumps: Time limit (9-21 days), 32 cities; recovery, 12 cities; time limit after recovery, 2 cities; no isolation, 18 cities; no data, 19 cities.

j. Whooping Cough: Time limit (14-56 days), 46 cities; recovery, 12 cities; no isolation, 9 cities; no data, 16 cities.

It will be noted that these data relate to the procedure theoretically adopted. In the case of the last diseases mentioned, particularly whooping cough, the actual enforcement of the regulations can occur in only a small minority of cases.

8. Terminal Disinfection.

Practice in regard to the treatment of the rooms occupied by patients is indicated in the table below for 82 cities.

9.—Control of Contacts.

Practice in regard to the control of contacts is indicated in the table below. Typhoid has been omitted from the table as quarantine of contacts is never required; food handlers are, however, restricted in 15 cities, and immunization is advised in 29.

	Smallpox	Chickenpox	Scarlet Fever	Diphtheria	Typhoid Fever	Cer. Spinal Meningitis	Poliomyelitis	Measles	Tuberculosis
Per cent of cities employing routine gaseous fumigation—82 cities	68	2	66	63	7	43	44	4	42
Per cent of cities advising cleansing (with or without fumigation)—69 cities	52	20	51	51	54	44	46	25	46

	Smallpox	Chickenpox	Scarlet Fever	Diphtheria†	Cer. Spinal Meningitis	Poliomyelitis	Measles	Mumps	Whooping Cough
Quarantine*†	81	7	33	11	22	24	2	3	2
Exclusion from school	..	26	38	18	24	20	28	21	22
Exclusion from school (non-immunes only)	..	11	..	..	..	..	23	9	16
Cultural examination	..	..	..	50	12	..	..	..	..
No restrictions‡	..	36	8	2	25	26	23	50	40
No data	2	3	4	2	10	13	7	..	3

*In the case of smallpox, 1 city reports quarantine only, 17 vaccination or quarantine, 15 vaccination and quarantine, 48 vaccination only.

†In scarlet fever and rarely in other diseases, quarantine regulation may be relaxed in the case of wage earners.

‡Four or five cities classified report more or less systematic observation of contacts.

THE INFLUENCE OF SANITARY ENGINEERING ON PUBLIC HEALTH

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FIFTY years ago sanitary engineering in this country scarcely existed, even in name. The larger cities were provided with public water supplies and there was a general desire among sanitarians to supply water free from filth. Sewers in combination with storm water drains had been built in the larger communities to a limited extent for several decades. Some of the more progressive engineers were watching the activities of the Rivers Pollution Commissions in England and at Paris, Berlin, and a number of other places abroad. The germ theory of disease had not been established. The laboratory man spoke of chemical tests in terms unappreciated by the engineer and of comparatively little aid to him. Bacteriology had not sprung into being. In brief, the history of the past fifty years tells practically all of the substantial accomplishments of the sanitary engineer in advancing the public-health movement on this continent.

I shall outline briefly what the engineer has accomplished along sanitary lines in the field of water supply, water purification, sewerage, sewage disposal, control of streams and the collection and disposal of solid wastes.

WATER SUPPLY AND WATER PURIFICATION

Fifty years ago most American water supplies were muddy, colored, polluted and frequently objectionable as to tastes and odors. Typhoid death-rates were high. The laboratory men were studying hardness, lead-poisoning and methods of measuring dead organic matter in water.

The art of filtration was practically unknown in this country, except in so far as efforts to get clear water in European cities had been revealed by the classical publication of Kirkwood. This engineer, long identified with the Brooklyn Water Department, was sent abroad in 1866 by the city of St. Louis to investigate foreign practice with a view to planning a plant for filtering the muddy water of the Mississippi. Practically the only outcome of this standard book on filtration was the installation in 1872 of two small water filter plants, at Poughkeepsie and Hudson, New York.

In 1884 the late Professor William Ripley Nichols brought back from Europe a few gelatine tubes and explained to engineers in Boston what the Europeans were doing in their efforts to apply new bacteriological methods to water supply matters. A year or two later, the Massachusetts State Board of Health was reorganized. It established in 1887 an experiment station at Lawrence, under the direction of the late Hiram F. Mills, a distinguished hydraulic engineer who had been made engineer member of the State Board. It was here that the first coördinated efforts were made to lift sanitary engineering into a plane whereby it, with aid of the chemist and of the biologist, with his new bacteriological methods, could expedite practical accomplishments.

In the fall of 1893 the water filter plant installed by the city of Lawrence, Massachusetts, under the direction of Mr. Mills, was put in service and the first bacteriological tests of a modern filter installation in America were reported to a convention of this Association then convened at Chicago.

To the engineer there was a wide difference in the water treatment arrange-

ments needed for the relatively clear waters of the New England States, or of England, as compared with the river waters of the South and West, so heavily laden with silt and clay. In 1895 investigations were undertaken at Louisville, Kentucky, under the direction of the late Charles Hermany, whereby the rapid or mechanical filter was tested in connection with sedimentation and coagulation. Subsequent investigations, embracing a coördinated set of tests of an engineering, chemical and biological nature were conducted at Pittsburgh, Cincinnati, New Orleans, Washington, Philadelphia and other places. The result was a substantial foundation for effective means of purification for the prevailing types of water encountered in this country. Actual construction of numerous sizable plants dates back some twenty years or a little more. During this interval immense strides have been taken in the installation and operation of water purification plants. In this march of progress the sanitary engineer, as might be expected from his earlier contact with laboratory men and the health officers, has played an important part in securing clean and safe water supplies for the American public through provision of proper works.

There are to-day more than eight hundred filter plants in operation in this country and Canada, serving more than twenty millions of people, or more than one-third of the population resident in cities and towns. In scores of cases heavily polluted sources of supply have been abandoned in favor of new and comparatively unpolluted sources.

Typhoid fever annual death-rates of representative cities on this continent ranged, twenty years ago, from about fifteen to fifty per hundred thousand population. In a number of large and well-known cities these figures reached seventy-five to one hundred or more. To-day the death-rates have dropped in many of those same cities, largely as a result of preventing or removing the pollution of public water supplies, to nearly one-tenth of the rates prevailing twenty to thirty years ago. Sanitary engineering has not been the only factor in bringing about this result. It is necessary to recognize the accomplishments in other fields of public health and to appreciate the results of the teaching of improved personal hygiene. Mention must also be made of antityphoid inoculation and other advances in the art and science of preventive medicine. Annual typhoid fever death-rates in large American cities for the past forty years are shown in the table on the following page.

It is hardly necessary here to speak of technical matters in detail, to explain how slow sand filters have been preferred for some water supplies comparatively free of turbidity, or how sedimentation and coagulation in connection with mechanical or rapid filters have sprung into almost universal use for the treatment of muddy waters, so generally found in this country. Laboratory control is an important element in practical accomplishments in controlling the purity of public water supplies, and many of the sanitary engineers of to-day have been well schooled at college and by practical experience in the need of bringing the results of practical laboratory tests to the aid of those who have charge of the quality of public water supplies.

Algae growths have produced offensive tastes and odors at intervals in many American water supplies. The removal of the microscopic growths themselves and of products originating with them can be effectively accomplished by means of aëration in conjunction with filtration.

Some twenty years ago the use of copper sulphate in controlling the growth of microscopic life in surface water supplies was introduced by Dr. George F. Moore. This step was of much practical help and continues to be so from time to time in many places.

About a dozen years ago the so-called sterilization or chlorination or disinfection of water supplies was proposed by Col. George A. Johnson, as a means of removing objectionable bacteria. Its use has become widespread, particularly as a factor of safety to be applied in connection with filtration processes. In many cases, however, its use has resulted in a falling off of the quality of filtered water, largely for the sake of economy during the war period, so that instead of being a factor of safety, chlorination has quite frequently become a substantial portion of the process for the elimination of objectionable bacteria. Undoubtedly the pendulum swung too far, and there is now a pronounced reaction whereby higher accomplishments are demanded of filter plants themselves. This affects the size of sand used in filter beds; the quantity of coagulant; the skill with which filter plants are operated, and other technical details which are receiving deserved attention though not discussed here.

ANNUAL TYPHOID FEVER DEATH RATES FOR VARIOUS AMERICAN CITIES
IN DEATHS PER 100,000 POPULATION

Year	Chicago	Milwaukee	Detroit	Cleveland	Buffalo	Boston	New York [6]	Jersey City	Philadelphia	Baltimore	Washington	Pittsburgh	Cincinnati	Louisville	New Orleans	Minneapolis	St. Louis	Kansas City	San Francisco
1880	34	37	.....	44	.....	42	25	24	58	59	54	135	70	.....	24	.....	40	[7]	34
1881	105	47	.....	99	67	56	38	63	74	58	46	151	71	.....	30	.....	53	.....	37
1882	82	32	.....	68	69	57	32	121	73	47	66	158	55	.....	33	.....	45	.....	61
1883	62	25	.....	65	34	52	32	49	64	35	62	107	51	.....	23	.....	41	.....	64
1884	56	31	.....	60	42	56	29	84	71	42	76	70	56	.....	25	.....	42	.....	58
1885	75	28	.....	34	23	40	27	71	64	42	65	76	42	.....	17	.....	31	.....	44
1886	69	30	39	56	28	34	26	60	64	39	71	68	54	.....	13	.....	30	.....	49
1887	50	31	65	52	34	44	26	54	63	41	78	128	142	.....	15	.....	28	.....	23
1888	47	42	46	47	29	40	23	74	78	42	87	87	70	.....	19	.....	31	.....	33
1889	48	28	31	74	30	43	24	83	71	47	94	95	49	.....	17	.....	33	.....	55
1890	92	41	19	69	40	35	22	98	64	59	112	132	69	.....	21	41	31	52	44
1891	174	33	34	50	51	34	23	100	64	35	82	101	62	.....	24	55	29	42	42
1892	124	30	94	59	34	29	22	72	40	44	89	100	40	.....	20	44	93	33	32
1893	[4] 54	35	42	52	37	31	21	66	**41**	49	86	111	44	.....	15	76	44	39	32
1894	38	25	28	29	59	29	17	53	33	47	91	56	55	.....	29	56	34	26	37
1895	38	26	24	35	26	33	17	95	40	36	86	78	39	.....	44	48	21	27	34
1896	53	18	23	43	20	31	16	84	34	38	58	62	52	.....	33	32	20	23	26
1897	29	12	15	23	20	33	16	20	33	37	48	64	32	.....	52	78	23	28	19
1898	41	17	22	34	27	34	21	40	46	36	71	73	33	.....	66	44	17	37	41
1899	27	17	13	32	24	30	16	19	75	29	73	111	37	.....	55	36	23	36	22
1900	[3] 20	17	27	54	26	26	21	21	35	35	78	144	39	64	40	39	29	35	13
1901	29	22	21	36	27	25	20	16	34	27	60	125	55	46	48	59	34	35	22
1902	45	15	24	33	33	24	21	20	44	42	78	134	62	61	45	27	37	31	27
1903	32	17	20	114	35	20	17	15	70	36	48	134	42	61	39	42	47	64	24
1904	20	14	20	48	23	23	17	19	53	37	47	142	79	63	36	42	36	30	27
1905	17	23	21	[4] 15	23	20	16	19	48	36	48	99	40	51	32	25	[5] 20	38	24
1906	19	31	24	20	23	20	15	20	74	35	[1] 50	130	70	71	30	34	17	27	58
1907	18	26	35	19	28	10	17	14	61	41	35	125	45	71	55	27	15	33	30
1908	16	17	22	13	20	25	12	9	35	33	37	45	[1] 18	47	33	19	14	28	19
1909	13	23	23	13	23	14	12	9	22	25	33	[1] 23	13	45	[1] 29	[5] 21	16	23	14
1910	14	45	20	19	20	12	12	7	17	42	23	[2] 28	6	[1] 32	32	.....	13	47	.....
1911	11	20	15	14	[4] 25	9	11	8	14	27	22	26	12	24	31	12	16	24	15
1912	7	26	15	[2] 7	12	8	10	8	[1] 13	24	22	13	8	22	14	12	11	11	14
1913	10	12	25	14	15	9	7	11	[2] 16	22	16	20	7	24	17	[1] 12	17	20	16
1914	7	8	11	8	16	9	7	8	8	21	11	15	7	27	22	13	12	15	13
1915	5	5	10	8	10	6	6	6	7	19	11	11	8	14	21	8	[1] 7	8	9
1916	5	16	11	5	11	4	4	8	8	[1] 16	12	9	3	14	23	6	10	11	3
1917	2	6	13	7	10	3	4	4	6	13	12	12	4	16	24	7	8	9	5
1918	2	6	8	[1] 5	7	3	4	5	5	10	11	10	5	15	20	9	8	16	4
1919	1	4	5	3	7	2	2	.....	5	9	4	4	3	6	14	3	6	11	3
1920	1	2	5	3	5	1	2	.....	4	5	6	.....	3	5	7	2	3	8	3

[1] Filtration effective for city.
[2] Sterilization of water supply begun.
[3] Drainage canal in service.
[4] New intake.
[5] Coagulation introduced.
[6] New York includes Borough of Manhattan only through 1898. Since 1898 Greater New York.
[7] After 1899, B'd of F. & W. Comm's, Kansas City, Mo.

DRAINAGE, SEWERAGE AND SEWAGE DISPOSAL

Drainage is an important element in relation to the public health, as shown by the fact that the drainage works installed some twenty years ago at New Orleans had a more beneficial effect upon the health of that community than did the installation in subsequent years of modern sewerage and modern water supply works. In northern climates the engineer has had to deal with drainage to eliminate the mosquito and thus keep under control those diseases that require an insect as a vehicle for their transmission.

Most American cities are now provided with moderately complete arrangements as to sewerage, but after household wastes have been collected the problem of their disposal has been a perplexing one with which sanitary engineers have wrestled in association with other workers in the public-health movement.

A great impetus was given to the installation of sewers some forty years ago as a result of investigations made by Dr. Rudolph Hering for the National Board of Health of this country. Those investigations embraced a comprehensive study of European practice and a clear statement as to fundamental principles involved in the art of properly removing the spent water supply from a community. The undertaking had its origin largely as a result of frequent outbreaks of yellow fever in the Southern cities. While sewerage was thus investigated in connection with an inquiry into the causes of a disease later found to be attributable to other factors, real good was performed in putting under way modern arrangements for removing household and other wastes in a suitable manner.

Water supply is a product which all householders desire and are willing to pay for, but the spent product, after its usefulness has been served, has engaged the attention of comparatively few, and these have seldom included the taxpayer, who frequently considers that money is spent needlessly when devoted to the sanitary disposal of the liquid and solid wastes of the community.

In Eastern states a good deal of attention was devoted to the investigations, commission reports and legislative acts adopted in England forty to fifty years ago. A few scattering sewage disposal plants were in operation in this country before 1890, but it was practically a lawsuit, instituted or threatened by property owners, which alone prompted substantial steps in the field of sewage purification. Here again the Massachusetts State Board of Health, with its experiment station and its sanitary engineers working in conjunction with chemists and biologists, did much to solve the problem of sewage disposal for conditions more or less similar to those in Massachusetts. The Lawrence reports also stimulated inquiries and investigations by numerous other workers both in this country and abroad. It is thirty-four years since the Lawrence Experiment Station was founded and fortunately we have a statement prepared for the engineering congress held in St. Louis in 1904 indicating the progress made up to that date in sewage disposal. Thus we have an opportunity of comparing roughly the progress made during the first seventeen years with that of the second seventeen-year interval since 1887.

In 1904 there were about ninety sewage treatment works in operation in cities and towns of 3,000 population or more, of which the total number in the United States in 1900 was 1,524. At that date about 1,100, or roughly about 75 per cent, of the cities and towns had more or less complete sewerage systems. The 1904 statement as to municipal plants does not include several hundred disposal plants in smaller towns, hotels, institutions and industrial establish-

ments. In 1915 there were over 600 treatment plants for municipalities on this continent and about 300 institutional and private plants for hotels and industrial works. War activities interrupted municipal activities but several important plants have been completed since 1915. Progress was much more rapid during the ten years prior to the outbreak of the Great War than in any decade prior thereto. Not only were many more plants built during the period from 1905 to 1915, but works were provided for larger cities, such as Baltimore, Columbus, Rochester and Toronto, with substantial beginnings made at Milwaukee, Indianapolis and several other larger communities. Since the armistice there has been much activity in the preparation of preliminary reports and completion of other arrangements looking to an active period of building sewage disposal works as soon as financial programs are completed.

Sewage disposal arrangements vary widely in type, depending upon a variety of geological, climatic and stream conditions. Legislative requirements also vary in different states and provinces, but practically all departments of health are now exerting their influence in the direction of clean water courses.

Notwithstanding the systematic efforts towards "river cleaning," the predominating method of sewage disposal has continued to be the dilution method. Within certain limits that are reasonably well understood, and when accompanied by suitable preliminary treatment, this method is fairly satisfactory, although frequently abused and misused.

Seacoast cities and towns, particularly those located near bathing beaches or shellfish layings, dispose of sewage now much more effectively than was the case twenty years ago. Recognition of the transmission of disease by infected oysters and clams and a general demand on the part of the public for clean bathing beaches have had much to do with the adoption of state and provincial laws looking to adequate control of sewage pollution. In general, this betterment has been accomplished by the use of screens, sedimentation tanks, long outfall sewers and by disinfection.

In New York Harbor and in some other tidal estuaries extensive investigations have been made as to dissolved oxygen in the water, a reasonable margin of which is considered important in maintaining clean harbors. Much has been done on the New York and New Jersey side of New York Harbor towards getting under way arrangements for correcting pollutions now found in such a conspicuous degree in certain arms of local waters.

The United States Government at present has very little control over sewage disposal matters. Its jurisdiction is limited practically to preventing the shoaling of navigable waters by sewage solids, and to the protection of government property which it may own on or near the waters in question. The United States Public Health Service has undertaken a comprehensive study from various angles of the pollution of the Ohio River, but the oncoming of the war interrupted steps in the direction of a federal waterways commission.

American rivers in many instances are fortunately very large, but they have not as yet received the benefit of adequate treatment of the sewage or industrial wastes entering them. Sanitary districts or joint sewage disposal projects have been created in quite a number of instances, but not to the comparative extent found in some European districts where river conservancy boards or drainage districts are established on a basis of facilitating real accomplishments.

Along the Canadian border, an International Joint Commission has done much during the past decade in seeking to prevent the pollution of these boundary waters to an extent such that life and property on one side of the boundary is injured by sewage pollution entering the waters from the other side. The

World War, however, interfered largely with practical accomplishments arising from the application of tentative rules of practice.

The so-called "land treatment" was the prevailing method of sewage disposal in New England for over twenty-five years, and still is such in some northern districts where deposits of coarse sand in place are found. Away from the glacial drift formation, sand filtration has been out of the question on account of cost, although in a few instances sewage has been treated in artificial sand beds. Sewage farming or the disposal of raw sewage by broad irrigation, even in semi-arid regions, has not been very satisfactory. The sewage when not needed is frequently diverted to streams or allowed to pool on limited areas, resulting in incomplete purification and offensive odors. Of about seventy such installations, mostly in California, nearly all produce odor nuisances and are sources of net expense due to one or more of the following causes, namely: lax management; unsuitable soil; insufficient preliminary treatment of sewage before its delivery; unsuitable location with respect to isolation; and insufficient land to permit of satisfactory treatment.

Sanitary authorities have taken a strong stand against the use of sewage in an untreated condition for irrigation of lands on which are grown vegetables that are eaten uncooked. Furthermore, objection has been made to sewage irrigation on the basis that disease germs may be transmitted by flies for a considerable distance from the sewage farms.

Chemical precipitation works, which were adopted so frequently in England some thirty years ago, and also by quite a number of American cities, have been largely abandoned on the ground of high cost for results accomplished. New works of this type have not been installed in recent years unless industrial wastes made such a step advisable.

Much progress has been made in methods of clarifying sewage by fine screens and sedimentation tanks in order to prevent rivers, lakes and tidal estuaries from suffering through offensive conditions, due to floating sewage solids and to the decomposition of banks of sewage sludge.

The removal of sewage solids is not the whole story, however, as regards either the disposal in a sanitary way of the sludge or solids themselves, or the purification of the non-settling substances, such as the dissolved and colloidal organic matter and the objectionable bacteria of intestinal origin. Non-putrescible effluents, substantially free of objectionable bacteria, can be secured by the use of several available processes when the plants are not too restricted in their arrangements.

Without going into details of methods now in vogue, it may be noted that in the results accomplished at numerous plants for treating sewage, either in single or two-story septic tanks or by stone beds, which financial considerations have necessitated as substitutes for sand beds, one is frequently surprised with the difficulty of getting efficient results uniformly in an inoffensive way. In part this is due to lax arrangements in the system of collecting sewers; in part it is due to inadequate or overtaxed disposal plants; and in part it is due to inadequate attention in the management of plant operations.

There is no cure-all in the field of sewage disposal. Screens, tanks, sand beds, contact beds, trickling filters, chlorination, activated sludge process are methods, of which each has its place in the satisfactory accomplishment of desired results. Each problem should be solved with due appreciation of local conditions and with the recognition that high grade performance of sewage disposal works involves a cost both for plant installation and for operation on a rather greater scale than was considered necessary a few years ago. This is true, notwithstanding the marked variations in price trends and the cost of both building and operating

works at present as compared with pre-war conditions.

Activated sludge is the newest method. It is a process which makes feasible a more complete purification of sewage than is readily secured by any other method than sand filters. It requires conscientious supervision, but I am beginning to believe that since few, if any, sewage disposal plants are fool-proof, it is perhaps an advantage, rather than a disadvantage, to the process to call for frequent and efficient supervision. During the war, when very high prices prevailed for fertilizers, it was hoped that the drying of activated sludge would produce a commercial product that could be sold to the fertilizer trade for a price which would offset the cost at least of handling the sludge itself. This is not certain under present circumstances, but again we must recognize that this is not necessarily a fatal drawback, and that if real accomplishments in treating sewage are to be effected in a sanitary way, the price must be paid in both money and intelligent direction. Experience shows that results can be produced to equal any reasonable demand, but the price of an adequate plant for the most suitable process to meet the given demand must be paid.

Progress in sanitary engineering in the field of sewage disposal is more associated with availability of funds than perhaps is generally realized. As already intimated, it is more difficult to secure funds for disposing of these waste products than it is to get funds for water supply improvements, or a new hospital, or new playgrounds, or new street pavements. There have been tendencies toward the formation of two groups of sanitarians with respect to sewage disposal. One of these sought quite complete purification at the outset and the other group sought a more gradual or piecemeal program, whereby funds would be applied in the right direction and with a continuing program of actual construction and plant expansion in accordance with comprehensive plans. Prior to the war the latter method was generally considered the more effective on the basis that if funds on too big a scale were sought nothing at all was accomplished in a practical way. The war upset the situation as to progressive betterments, with the result that numerous sewage disposal plants are now greatly overtaxed and funds are not immediately in sight for improving them.

STREET CLEANING AND DISPOSAL OF SOLID WASTES

These subjects are properly included in the scope of sanitary engineering and in this country progress has been substantial. Accomplishments for the most part have followed European precedents, but have not attained as satisfactory results, generally speaking, as found in the better known European cities. A good resumé of developments as to garbage and refuse disposal is to be found in the *Proceedings* of this Association, containing reports of a committee of which Dr. Hering was chairman for many years, beginning in 1887.

The epidemic of infantile paralysis in 1916 and the outbreaks of influenza during the war stimulated street cleaning in some cities to a substantial extent; but depleted funds and restrictions in capacity of water supply works have caused some municipalities to fall back to a standard of accomplishment lower, rather than higher, than that prevailing just prior to the war.

The United States Food Administration during the war made a strenuous effort to avoid waste and secured comprehensive data as to garbage utilization from cities of 10,000 population or more.

These data were summarized in *Engineering News-Record,* October 17, 1918, by Mr. M. N. Baker, who is now chairman of the committee of this Association dealing with refuse disposal.

Garbage collection was systematically handled in 1918 in 526 of the 785 cities. It was found that 382 cities, with a com-

bined population of nearly 30,000,000 were then feeding garbage to hogs, or reclaiming from it fats and fertilizer by means of reduction works. Reduction plants were operated in 37 cities having a population of about 18,500,000, so that garbage was fed to hogs in 345 cities with a total population of about 11,000,000.

Of the 316 cities not utilizing their garbage, 102 incinerated it in furnaces, and 214 reported what has been designated as the "burn, bury, or dump" arrangement, which varied widely in its detail and included both land and water dumping.

Since the war, with a marked drop in the price of hog meat and of grease and of fertilizer, things have changed materially and again the problem has become one, generally speaking, of avoiding a nuisance. Prospects of substantial profit scarcely exist at present.

The most effective way of avoiding a nuisance from solid wastes from the viewpoint of the sanitary engineer is now by incineration. In this country low temperature and high temperature furnaces have been used. The former have predominated and the performance depends largely upon the temperature obtained through the addition of fuel.

The high temperature incinerator is the most reliable method for disposal of solid wastes in a sanitary way. The gases may be used profitably for firing steam boilers, particularly if additional boilers, fired with other fuel, are also provided.

The sanitary engineer is able to bring about in an effective way the sanitary disposal of solid wastes. Overtaxing of plants and difficulties from odors have been more pronounced than should have been or need be the case. Even in garbage reduction works the control of odors by passing the released gases through combustion chambers maintained at a very high temperature and their passage through curtains of water spray are things which the engineer knows about but which have not ordinarily been put in practice.

In conclusion, it may be said that substantial accomplishments in sanitary engineering during the past fifty years have been made in plant installations, in coördination with the efforts of other workers in the public-health movement. Much has been accomplished also in developing sound bases for procedure; but much yet remains to be done, especially in practical application in the rapidly growing portions of our country.

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THE WIDER DEVELOPMENT OF STANDARD METHODS

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Address of the Chairman, Laboratory Section, Fiftieth Annual Meeting, American Public Health Association, New York City, November 14, 1921.

IN the world of machinery the United States is the leader in the development of standardization of methods and of manufactures. The interchangeability of parts and the consequent ease of repair in case of injury has had much to do with our mechanical preëminence. This has become so much of a habit that we are often accused of standardizing men into machines, and at times the accusation is well enough founded.

There are still places in our scheme of development in which this principle can be carried further, and it is of one of these that I wish to speak to-day. It is somewhat paradoxical, yet none the less true, that while laboratory methods are much in need of improvement in this direction, yet they are at the same time among the most difficult to handle. The constant comparison of work in one laboratory with similar work in another,

whether the results are to be used in research or in court cases, makes a common basis essential for acceptance of results; yet the technic on which these results are based must always remain in flux and the standards can never be final. None the less they may serve as a basis, all variations from which must be noted, and when so noted may be properly estimated.

Consultation of the literature on any branch of laboratory technic shows by the vast array of methods recommended that none is perfectly satisfactory, but none the less, by a natural process of selection and exclusion, certain principles have been accepted as fundamental, such as differentiation of bacteria by fermentations, the relation of the hydrogen-ion concentration to the growth of bacteria, and similar complexes which have become axioms of our everyday laboratory life. Yet in their practical application there is no real uniformity of method, although they are at our command as a foundation for standards and variations.

The need for further unification has long been clear, but the stimulus of this need has in the main set up only local reactions. State laboratories with many branches have found identity of technic necessary for proper correlation and summarization of results, as brought out by Wadsworth last year in his address to the Section, and by others. Various associations such as the Agricultural Chemists, the Water Works Association, bureaus in the Federal Government, etc., have tried to establish standards in their own lines of work, and with such success that many of their results are accepted far beyond the limits of the original group.

Each of these, however, while interested in some phase of public-health laboratory work, has been limited in its sphere of action, and it was apparently the clear duty of the American Public Health Association to begin a wider process. When the Laboratory Section was founded in 1899, a Committee on Standard Methods of Water Analysis was formed with George Fuller of New York as its first chairman. A preliminary report was made the next year and published in the *Engineering Record,* as it was decided to delay the publication in the official records of the Association until opportunity had been given the members for criticism. Since that time the Committee, with changing personnel, has been most active and has prepared a series of reports, the last of which is now in the hands of the Section. It was not until 1905 that S. B. Prescott suggested a similar committee on milk and was selected as its first chairman. This committee made its first report two years later, and has since presented a series, of which the last has recently been printed. In 1907 the interest in the reports of the two committees was sufficient to stimulate the Council of the Laboratory Section to appoint a further group of committees, some of which no longer exist, while others were added as occasion arose. In 1920 there were committees on Water and Sewage, Milk, Shellfish, Air, Preparation of Anti-meningococcus Serum, Diphtheria Antitoxin, Tuberculin and Mallein.

These committees were appointed annually by the Council of the Section, and often rather hurriedly. They reported to the Section either in the form of progress reports, or with more detailed reports and requests for permission to print. Some of them found their work opened a new field while others found that various degrees of activity were already to be found outside the Association, and it is to the credit of the committees that they stimulated coöperation from the beginning.

As was natural, the work of the different groups varied in intensity, more or less according to the urgency of the need. Some of the committees were in fact appointed to meet emergencies and the reason for their existence lapsed at the same time as the emergency. Others, and notably the milk and water commit-

tees, had their work cut out for them, to select from the multiplicity of changes claimed as improvements those which were really such. In the same way and for the same reasons, some reports were published only in the columns of the official JOURNAL, while others required the printing of a large number of separates to meet the demand.

It was seen that the same group of men appeared in many of the committees, and also that the lack of income made the carrying on of investigations a burden too serious for some of the less well financed laboratories. For these and other reasons it appeared to many in the Section that some of the troubles could be diminished and some of the best features stimulated by the formation of a standing Committee on Standards, which would control and correlate under one authority the various activities formerly scattered among a number. This idea was presented as a part of the 1919 report of the Committee on Standards for Bacterial Analysis of Water and a committee was appointed by the Section, with F. P. Gorham as chairman, to draw up the necessary amendment to the Constitution of the Section, and presented its report at the 1920 meeting. This report was accepted and the Committee is now in existence and functioning. It is composed at its beginning largely of the chairmen of former separate committees to promote continuity.

The Section has approved the plan, and the degree of success of the Committee is in its hands. The Committee reports to the Section, and the Council of the Section selects the members of the Committee; so that it is clear where the ultimate responsibility lies. The efforts of your new committee must be largely along the lines of critical stimulation of investigations leading to improvements of methods, and in many cases its members will have no contact with the actual work done. This last will be entrusted to referees selected by the Council on recommendation of the Committee, and their activities will be comparable to those of the former special groups. It is worthy of note that there is no restriction on the selection of the referees, who need not even be members of the Association. In practice their work will come first before the men best qualified to judge of that particular phase of the work, and then before the Section. The changes adopted by the Section will remain on trial for a year before adoption, but will be made available to all in order to get the most efficient criticism.

It should be the main effort of the Committee to carry out the original idea of developing a set of standard methods which shall be the accepted form, and which, while always open to improvement, shall not be altered until such improvement shall have been proved.

The word "coöperation," like "welfare," "efficiency," and similar characterizations, has been used almost *ad nauseam* and yet we have no good substitute. There are certain main phases of public-health laboratory work in which the main experimentation has been done through organizations to which health is not a prime function, and who have little interest in its more general questions. The very multiplicity of their work-places and the large number of their tests drive them more rapidly to a standard than is the case with others. The very fact that their relation to health is often remote, and that at times they feel themselves on the defensive, brings out differential points neglected by the health laboratories. This has already been appreciated by the former officers of the Section, and should be continually appreciated by their successors. The coöperation so well begun should be extended so that there can be no feeling that any one has been slighted or that his ideas have not had fair consideration, for there are still advances possible. When the Association and the Public Health Service have different standards for the determination of the potability of water,

even though the technic of the work be the same, there is a confusion in the minds of the laity, and with the confusion a natural tendency to a lack of faith in either one.

It should also be the policy of the Committee, and through the Committee the policy of the Section, that in all reports the full and proper credit be given to the actual person doing the work, and to the Association with which that person is connected, and that the Standing Committee should appear as an agency correlating the various investigations. The facts that in the past much of the work has been done by persons and groups whose interests were not primarily in the Association, and that much work in the future will be done by the same or by similar groups, make it most important that the American Public Health Association should not appear to consider itself in any way the only organization fit to present standards, but rather as the organization which by its wide contact with all phases of public-health work is privileged to offer its services to bring together and make more available some of the special investigations.

And finally, there is the problem of making available the standards to which, let us say, optimistically, all the technical groups will assent. So far the practice has been to publish short reports in the Journal, especially when they constitute only progress reports, and to bring out as separates the more important ones. This last is essential and is to be encouraged, but is not sufficient. There are two groups of persons to whom standard methods are important. On the one hand is the group with which we have been dealing, namely the persons who are actually to use these methods in their daily work or who are dependent on the results obtained from them for modifications of their organization or policy. This is the group for which the separates are prepared, and of course far the larger section of those interested. But there is another group, also very important, though perhaps less in the public eye. By this group men are prepared for the posts in which they are to use the methods under consideration, and it is clear that the easier it is made to teach standard methods the better they will be taught. At present there is no suitable text book for instruction of a class in public-health laboratory methods. There are of course excellent descriptions of some of the methods in the text books on bacteriology and hygiene, but we all know that in many respects a text book may be out of date before it is printed, and also that a frequent revision is something not lightly undertaken. It is true of course that in many cases the technical assistants just grow, like Topsy, by assisting their superiors until some accident pitchforks them into posts, in which they do more or less well; but in any case they are limited in point of view and breadth of vision to what they may have absorbed from their teachers. It is perhaps one of my obsessions that the modern tendency to limit the outlook of a worker to some small phase of the work is wrong, and accordingly it is my belief that the broader and more illuminating relations, which are brought out only where a teaching institution is the source of the instruction, and where more than the actual technic in hand is included in the lesson, should be emphasized.

More and more schools have developed courses in public-health bacteriology. Such courses are given in more and more institutes and in state after state courses are given actual or prospective health officers. All this teaching is more or less hampered by the absence of an adequate text, and it seems that it might well be one of the functions of the new Committee to furnish assistance.

Difficulties spring at once to the front. The first objection is that there are many groups which are interested only in a specialty and who prefer separates. This

is quite true and it would be unfortunate if the issuing of a full text should interfere with these. I am inclined to believe, however, that a text-book would call the attention of many to the fact of the standards, and that it would create a demand for additional separates of kinds which are now not called for. It is stated that there are many of the much-used technics which are at present incapable of standardization. This is undoubtedly true, though even concerning the Wassermann test there are marked differences of opinion in this connection. But in any text-book there must be reference to matters which are not well determined; yet the book is not of less value for that reason. The most valid objection is that there is constant change and that a book would soon lose its accuracy. This is of course true, but if an edition were issued, say every three years, complete as far as possible up to date, there would be much in it that would be settled, and what was subject to change would be modified from time to time by the referees of the Association, presented to the Section, and printed in the JOURNAL as soon as accepted, thereby becoming available. All the persons who taught these courses would of necessity become members of the Association and would thus be kept constantly in touch with its work. Incidentally this necessity is a distinct stimulus to a teacher.

The financial problem is also of great importance. There is now a certain profit accruing from the sale of separates, and while it is true that no additional financial burden should be placed on the Association, it is proper that the profit on publications stimulated by the Committee should revert to the Committee. Moreover it is similarly proper that no overhead should be calculated as a debit which is not directly caused by the preparation and issuing of the material published. If the investigations are to be properly carried out, it is clear that at the best there will not be sufficient income from this source, and it would appear reasonable that a committee with the breadth of aim planned by the Section would have a better chance of obtaining outside funds than any of the original smaller subdivisions.

In summation, the problem before the new Committee involves a continuation and expansion of the policy of obtaining by mutual compromise a set of standards which will be acceptable to all organizations working in these lines. It also involves the publication of the results in such form or forms as will make them most widely used and most constructively criticized. To these ends it is essential that we appreciate that no one group is infallible, but rather that it is only by coöperative contact of groups with differing primary interests that ultimate success will be obtained.

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REPORT OF THE COMMITTEE ON STANDARD METHODS

Read before the Laboratory Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 14, 1921, and adopted by the vote of the Section

AT the New Orleans meeting of the Association, a committee with Dr. F. P. Gorham as chairman, was appointed to draft an amendment to the constitution of the Laboratory Section, consolidating the various committees on standard methods into one. The report of this committee was submitted, and at the San Francisco meeting was adopted by the Section as follows:

REPORT OF THE COMMITTEE ON THE APPOINTMENT OF A STANDING COMMITTEE ON STANDARD METHODS

1. The various committees on standard methods of the Laboratory Section of the A. P. H. A. shall be abolished, and the Council of the Section shall appoint a standing committee on Standard Methods from the members of the Section who are federal, state, or municipal officials. This committee shall consist of nine members, three to serve three years, three to serve two years, and three to serve one year, and thereafter three members shall be appointed by the Council at each annual meeting. The committee shall have power to appoint its own officers. All matters pertaining to the adoption of standard procedures by the Section shall be referred to this committee. It shall be the duty of this committee to edit and to publish all provisional and standard methods approved by the Section. The necessary expenses of the committee shall be defrayed by funds derived from the sale of such publications.

2. The Committee on Standard Methods shall have power to appoint one or more referees, not necessarily members of the Section, whose duty it shall be to investigate any new methods or modifications of standard methods. The referee shall have the power to appoint any number of assistant referees to aid in their investigations. It shall be the duty of referees to distribute samples and reagents, to formulate all methods or tests to be used, to furnish blanks for tabulating results and to present at the annual meeting of the Section an advisory report on the results of the work done, together with recommendations for action by the Section. Each referee shall forward to the chairman of the Committee on Standard Methods at least one month before the meeting of the Section his recommendations and an abstract of his report.

3. No method shall be adopted by the Section until it has been referred to the Committee on Standard Methods, reported on at a meeting of the Section by a referee, and recommended by the Committee on Standard Methods. It may then be adopted by the Section as a provisional method and shall be published as such by the Committee on Standard Methods. A provisional method shall be referred again to a referee, reported on by him, and may then be adopted by the Section as a standard method and published as such by the Committee on Standard Methods.

Owing to the small number of Council members present, and the importance of the question, A. B. Wadsworth, chairman of the Section, thought it best to omit the Council meeting at that time, and leave it to the incoming chairman to call a meeting at a later time, when fuller representation could be obtained.

It was not until December, 1920, at the Chicago meeting of the Association of American Bacteriologists, that this was accomplished, but at this time a meeting was held at which were present: Edward Bartow, A. P. Hitchens, C. A. Shore, R. G. Perkins, C. A. Williams. E. O. Jordan was unable to be present, but was consulted before and after the meeting and gave his approval. A. B. Wadsworth, L. A. Round and B. L. Arms were not in Chicago.

The constitutional amendment was discussed, and in view of the fact that Section I dealt with the general finances of the Association, Mr. Hedrich was invited to be present.

The selection of the membership of the new committee was made with two ideas in mind, one that the various groups, federal, state, municipal and university should be represented, and one that the geographical distribution should be wide enough to get different points of view without being so wide as to make discussions and meetings impossible. The personnel finally selected was as follows:

Henry Albert, appointed for 3 years.
R. S. Breed, appointed for 1 year.
F. P. Gorham, appointed for 3 years.
A. P. Hitchens, appointed for 1 year.
E. O. Jordan, appointed for 3 years.
G. W. McCoy, appointed for 2 years.
W. F. Monfort, appointed for 1 year.
W. H. Park, appointed for 2 years.
Chairman, R. G. Perkins, appointed for 2 years.

After the selection of the committee the main questions were the principle of selection of referees and their status,

and the financing of the work. Although the Council appreciated that these details belonged, strictly speaking, to the committee itself, it felt that a discussion of such policy would be illuminating, especially as several members of the new committee were present.

With regard to the first question, it was agreed that until all reports of the old committee which were still in preparation were completed and handed in, the chairmen of such committees, unless already on the central committee, should act as referees and the rest of the committee should act as assistant referees. This action was really necessary, inasmuch as the appointment of referees takes place only at annual meetings, the next annual meeting being the present one; an interim arrangement was therefore essential.

In regard to the finances, the secretary of the American Public Health Association stated that the clause reading, "It shall be the duty of this committee to edit and to publish all provisional and standard methods approved by the Section," was in contravention to an unwritten law of the board of directors, keeping all such control in the hands of the general Association. It was, however, the opinion of the Council that it was not fair to impose expenses on the referees when this could be avoided, and that inasmuch as publication of the standard methods was a good publicity measure for the Association, such publication should be stimulated whenever possible.

The secretary agreed to bring the matter before the board of directors and to urge that whatever money could appropriately be turned over to the committee should be so used.

During the early part of 1921 the chairman sent a circular letter to the members of the committee, embodying certain suggestions for the policy of the committee.

In this letter the main thesis was the publication every three years of a single volume containing revisions of standard methods up to date, for teaching purposes mainly, with the idea that this would extend the knowledge of standard methods and make them more used, thus stimulating criticism and improvement, and that the adoption as a text-book in the better medical schools would stimulate interest in the Association. It was also brought out that such a procedure would in no way interfere with the printing of separates, as there are many groups interested only along certain lines. Changes in the interim period between editions could be readily cared for by instructors, and the need for this would assist in keeping them up to date. These changes could be published in the JOURNAL when approved and thus made accessible.

The letter also brought out the need of finances, especially for assisting in expenses of referees, the money for this to come in part from publication profits and in part from outside sources if any such can be interested.

Answers were received from the members of the committee favoring these general principles, and the general consensus of opinion was that until the present meeting it would not be practicable to do more than get together the work already nearly complete, and then lay out our plans for the future.

The committees appointed in 1919 at New Orleans and their chairmen were as follows:

Committee on Standard Methods for the Bacteriological Examination of Milk, W. H. Park, chairman.

Committee on Influenza, W. H. Park, chairman.

Committee on Standard Methods for the Bacteriological Examination of Shellfish, P. D. Parsons, chairman.

Committee on Standard Methods for the Examination of Air, C.-E. A. Winslow, chairman.

Committee on Standard Methods for the Bacteriological Examination of Water and Sewage, F. P. Gorham, chairman.

Committee on Standard Methods for the Chemical Examination of Water and Sewage, W. L. Monfort, chairman.

Committee on Standard Methods for the Preparation and Standardization of Antimeningococcus Serum, C. Krumwiede, Jr., chairman.

Committee on Standard Methods for Preparing Tuberculin and Mallein, A. P. Hitchens, chairman.

Committee on Standard Methods for Preparing Diphtheria Antitoxin, P. G. Heineman, chairman.

The following committees were discontinued:

Committee on Standard Methods for Diagnosis and Treatment of Rabies.

Committee on Standard Methods for the Diagnosis of Glanders.

Committee on Standard Methods for the Standardization of Disinfectants.

The present status of the work of the active committees which will be merged into the Standing Committee is as follows:

The most recent findings of the Committees on Bacteriological Examination of Water and Sewage, and the Committee on the Bacteriological Examination of Milk are in print as separates, though the former is in combination with the report of the Committee on Chemical Examination of Water and Sewage, now ready for final revision by the members of the original committee.

The Committee on Shellfish has turned in its report for publication, and the same is true of the Committees on Antimeningococcus Serum and on Diphtheria Antitoxin. There is no material ready for publication from the Committees on Influenza, Tuberculin and Mallein, and the Examination of Air, though progress reports were accepted from these committees at the San Francisco meeting.

The Standing Committee has been called together for a meeting at this time for organization of work for the future, and hopes to have the hearty coöperation of the Section.

ROGER G. PERKINS, M. D.,
Chairman.

OPPORTUNITIES OF VITAL STATISTICIANS

W. A. PLECKER, M. D.
State Registrar, State Department of Health, Richmond, Va.

Read before the Vital Statistics Section, American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 15, 1921.

WHEN a trained physician abandons the agreeable and useful work of the general practitioner to accept the call to become a vital statistician, he is apt at times to wonder whether he has acted wisely, and whether his opportunities for service are greater in his newly-chosen field.

This thought was particularly insistent during the strenuous war and influenza period; and it still persists on account of the growing deficiency in the number of country doctors, created by the high standards and high cost of medical education.

An additional reason for doubting the wisdom of continuing in a work with a fixed, and usually insufficient salary, is the fact that the same energy and qualifications necessary for a successful state registrar would probably bring much better financial returns if properly directed into other channels.

When, in addition, we consider the periodical struggles with legislatures to secure sufficient appropriations to carry on the absolutely essential work in anything like a satisfactory manner, and the disappointed hopes when one sees his visions of life-saving measures vanish into air because legislative committees rate dollars higher than human life and health, then he cannot but doubt whether his time and efforts are worth while.

Add to this the difficulty of securing the passage of the simplest and most obviously essential improvements in your law without hours and days of wasted time and humiliating lobbying, and the picture is made still darker.

Then consider the lost thrill of knowing that you have saved a human life and

the fond memory of close friendships and endearing words of love, or maybe flattery, which grateful patients pour into your ears. For these pleasures you substitute the ill will and cynical letters of physicians and others who, by their own neglect, force you into an attitude of harshness in law enforcement.

What have we to offset this dark side of the picture?

If there was nothing more than the daily grind of routine work—even though we well know that this is fundamental and is the foundation upon which efficient health work rests—we might grow impatient, and even be tempted to return to our old and pleasant field.

This paper is intended to show that it is possible for a state registrar, who is a physician with the life-saving instinct strongly developed and who is associated with a chief who does not hinder or restrain, to make use of numerous opportunities for service, independent of the usual work of collecting and compiling vital statistics, yet based upon the first-hand information thus acquired.

In most states, the money and effort available to the health department is used in controlling typhoid fever, tuberculosis, venereal and other communicable diseases, and in lowering the infant death-rate.

Some phases of health work now being done by various separate bureaus may be more economically and satisfactorily handled in connection with the vital statistics bureau, each branch of work really adding to the ease and efficiency of performing the other.

Other opportunities not yet reached by the main health department may be identified, the situations statistically studied, and the work interwoven and engrafted into others of a similar nature. Such work may be inaugurated and developed as far as it is possible from the vital statistics office, until it can be taken over by special field workers with sufficient means.

Some such collateral work is now being done by the Virginia Bureau of Vital Statistics, while other opportunities have been identified and await development.

While probably no two states have just the same problems and opportunities, it is likely that almost all states having directors in charge trained in medical practice and health work may find openings for additional service beyond the mere clerical work of supervising the collection and compiling of vital statistics.

In organizing the Virginia Bureau, the state registrar introduced a simple method, used with good results by him as county health officer and vital statistician, which enabled him to keep an accurate check upon the number of births reported each month by the individual physicians and midwives.

The physicians and midwives of each county and city are listed upon properly ruled sheets, and each month, in the proper column, the number of births reported by each is checked off from the bound certificates.

The physicians and midwives are each sent an annual letter of encouragement, in which they are told individually the number of births reported by each during the previous year. These sheets are bound into volumes and give a continuous record of the obstetrical work done by the 3,000 doctors and 6,000 midwives of the state for each year. This positive record is put to many uses, such as keeping careless men from being appointed health officers, local registrars, etc.

Two important pieces of work are effectively and accurately done, based upon this system.

One is the enforcement of the law for the prevention of blindness, through the distribution of wax ampules of 1 per cent solution of nitrate of silver, to physicians and midwives, to be used in the eyes of the newborn.

We note over the name of each, the number of ampules sent with date, and notify by form letters any who are found to be reporting births largely in excess of the number of ampules requested. This

enables us to send the correct amount needed, prevents waste, and enables us to keep constantly in their hands a supply of fresh material to last not over six or twelve months.

When the state legislature placed these midwives under the supervision of the state registrar, with autocratic power to grant or refuse them permits to practice, we had the complete machinery already running smoothly for handling the situation.

A permit was prepared, on the back of which was printed a number of inflexible rules for their guidance. These were issued to the midwives by the local registrars. They are signed by state and local registrars, and are the authority by which the midwife may charge a fee for services. With the permit is issued also an illustrated booklet of instructions.

No opportunity is lost of impressing upon them the one rule, that they are never to make a vaginal examination. By this means we believe the puerperal septicemia death-rate has already been materially lowered.

We also reach the physicians, not all of whom are equally aseptic in their methods. We inform them by letter with the same booklet just how we are handling the midwives, and solicit their aid in impressing upon them the instructions we have given. A number of county nurses are now giving midwives systematic instruction under our guidance.

We realize that our teaching of these midwives is quite elementary and their requirements meager in comparison with some other states with different populations and physicians in more adequate numbers.

When it is remembered, however, that our midwives are chiefly uneducated, colored women, the long road to be traveled before they become competent obstetricians, will be appreciated.

While the death-rate from typhoid, tuberculosis and the diseases of infancy and childhood are being constantly and steadily lowered, the pitiable fact remains that in nearly, if not all, of the states of the Union, the puerperal death-rate is from two to four times what it should be if every pregnant woman could receive adequate prenatal and obstetrical care.

In Virginia, and certainly in many of the other Southern and Western states, owing to the scarcity of physicians in the rural sections and their unwillingness in many cases to give up their valuable time without adequate compensation, many women must necessarily be attended by ignorant and dirty midwives.

In order that those who are specially endangered may be warned of the causes and prevention of puerperal accidents and deaths, we have hit upon a plan of systematically teaching the 25,000 newly married couples whose marriages are reported annually to our office.

An illustrated booklet is mailed under first-class postage to these young couples, giving them timely advice on these and other health subjects. In it also, an effort is being made to stop the rapid increase in divorces, reports of which are likewise received and compiled by our Bureau. Warning is also given of the criminality and danger of induced abortion. We estimate that if this plan is systematically continued for ten years, a quarter of a million young couples of child-bearing age will have received at least this much instruction and warning.

This constitutes the most important part of the population, and that which ordinarily would not yet have been included in the mailing list for health literature. The booklet recommends the bulletins on prenatal and infant care of the Children's Bureau, and the various publications of the State Health Department. Many appreciative letters requesting this reading matter are received at our office.

The state registrar is likewise special agent for the distribution of the child and maternal welfare literature of the Childrens' Bureau, and is doing considerable work in thus distributing it where it is needed and wanted.

An effort is now being made, also, to reach the young mothers through the cradle rolls of the various Sunday-schools. The Methodist Church is already coöperating to some extent in this work, and it is hoped that others will likewise call upon us for lectures or literature.

The state registrar lectures at the Medical College of Virginia, the School of Social Workers in Richmond, and has the arrangement of a course of lectures on preventive medicine, first aid, obstetrics and nursing, given by the heads of the State Department of Health to a rapidly growing school of young women who are in training under the auspices of the Presbyterian Church to become missionaries in this and foreign countries.

There is a wide field also for the writing of timely newspaper articles upon general and special subjects, which may be based upon statistical studies and made adaptable to local communities or to the state at large. Newspapers are usually glad to accept such articles if they are properly written, especially when they are of local interest.

For a while our Bureau issued a monthly bulletin containing short discussions of timely topics, giving also a table of birth-and-death-statistics by counties. We are compelled, however, for lack of sufficient appropriation, to discontinue it, but hope that it may be taken up again.

In closing, I will say that this collateral work may be done by any interested registrar of vital statistics with medical or public-health training, and need not interfere in the least with his main work as a vital statistician, that work being done chiefly by others under his guidance.

It is not expected that any other one person will be able to do just this form of work in just this way, but any one may, if he will, discover similar opportunities in fields ordinarily not yet reached by other health workers, and which he may with his statistical knowledge of facts, do, perhaps, better than anyone else, at a minimum of cost.

SUMMARY

State registrars who have been practitioners of medicine and have the life-saving instinct strongly developed, may find opportunity on the side for such effort.

This need not interfere, but may assist in securing and compiling statistics.

1. The law for the prevention of blindness may be most efficiently enforced through the lists of physicians and midwives, and a system of checking off monthly the births reported by each, and holding them up to requesting a similar number of ampules.

2. Effective work may be done toward reducing the maternal and infant death-rate by supervisory and licensing power over midwives, who are taught by booklets and letters and required to obey health rules.

3. County nurses may be encouraged to do follow-up and more intensive work, and be aided through lists and records of midwives, literature and advice.

4. Bureaus recording marriages may instruct newly-wed couples by means of attractive booklets, etc., urging them to ask for fuller prenatal and maternal and child welfare literature.

5. Amongst other means are timely newspaper articles, and lectures to medical and other schools, and the public.

6. The Virginia Bureau of Vital Statistics is demonstrating the possibility of these methods of service.

Health Plays for School Children.—A pamphlet containing 15 health plays, which were developed by teachers and pupils in the public schools of Greater New York, has been printed by the Health Service, New York County Chapter, American Red Cross for Child Health Organization of America. All of the plays are presentations of the value of milk to health. Some are very short, mere tableaux or recitations, others are long and require considerable dramatic ability. The booklet is illustrated with clever sketches.

REPORT OF COMMITTEE ON MORE ACCURATE POPULATION ESTIMATES

Read before the Vital Statistics Section, American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 17, 1921.

IN estimating populations in the intercensus years, it has been the custom of the Census Bureau to add on each year one-tenth of the increment of growth shown during the two previous federal enumerations. This method, known as the arithmetical estimate of growth, is generally satisfactory, but there are instances of unusual growth, due to industrial activity, where the arithmetical method introduces a large error. For instance, Detroit's death-rate, as taken from the mortality statistics for 1917, was 19.0. Actually the figure should have been 14.2. The census estimate of population in 1917 was 589,000. The figure determined by a local estimate was 825,000. As the census figures are regarded as official and are widely used, a grave injustice may thus be done to a city by the publication of erroneous mortality rates.

The committee, since its appointment at the San Francisco meeting, has been in correspondence with the census bureau relative to this matter. The following two propositions were made:

(1) That the Census Bureau on May 1 of each year notify the health commissioner of each city of 100,000 or over, and the health commissioner of each state, of the population it proposes to recognize on July 1, and that if any deviation from this is necessary, the health commissioner should submit facts tending to show what the population figure should be.

(2) That the Census Bureau give due consideration to the information submitted and make such alterations as they deem reasonable, so that the annual mortality statistics and the weekly health index may portray the populations and the mortality rates with the greatest accuracy possible.

These propositions were not accepted, but the geographer of the Census Bureau, Mr. C. S. Sloane, is willing to depart from the arithmetical method in certain instances and proposes the following method of checking populations:

From the total deaths certain causes (1, 4 to 10, 28 to 35, and 155 to 186) are deducted. Using the remaining causes for the last six months of 1919 and the first six months of 1920, and the enumerated population of January 1, 1920, a rate is computed. This rate (which is assumed to be constant) is applied to the remaining deaths of any year, after same causes have been deducted from the total deaths; this gives the new population. An estimate can be made arithmetically by using the above population and the latest census as a base, and then projecting forward for a year or so, but not more.

It is possible that this method will prove satisfactory. However, it will be noted that the deaths from pneumonia are not deducted, so that any calculations based on 1919 and 1920 figures will be in error, owing to the effect of the influenza epidemic. Due to the minor pneumonia disturbances that occur every few years, we question whether pneumonia should properly be included in the so-called static death list.

There still remains the case of the city or state which takes an accurate census of its own accord. Under the present plan this will not be recognized. A city-wide census, conducted by the board of education in May, 1921, shows 942,000 people in Detroit. The estimated population, as published in census reports, is 1,070,000. There is every reason to believe that this census is fully as accurate as the federal census and should be given recognition. Otherwise Detroit's mortality rates will now be too low, whereas prior to January, 1920, they were too high.

It is the recommendation of our committee that the Vital Statistics Section endorse the following resolution to be forwarded to the Bureau of the Census.

RESOLVED, That it is the sentiment of the Vital Statistics Section of the American Public Health Association that the Census Bureau, in making estimates of population in the intercensus years, shall give due consideration to local censuses and shall use the local figures in preference to the arithmetical method of determining annual increase if the local census is taken under the supervision of the Bureau of Census and if they are satisfied with the accuracy of the figures.

GEORGE T. PALMER, D. P. H.
Chairman.
L. E. ROSS
SHELDON L. HOWARD

THE HYGIENE OF CARDIAC CHILDREN

CHARLES HENDEE SMITH, M. D.

Professor of Clinical Diseases of Children, Columbia University; Visiting Physician, Children's Medical Division, Bellevue Hospital

Read before the Child Hygiene Section of the American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 15, 1921.

CAN we lay down any rules of hygiene which are applicable in general to all children with heart disease? Before we can decide this it is necessary to consider briefly several aspects of the cardiac problem. By the studies made in the many cardiac classes established in New York and elsewhere in the last five or six years, we have learned a good deal about the systematic care of the cardiac patient. What I shall say is based upon about five and one-half years' experience in the Huddleston Memorial Cardiac Class at Bellevue Hospital and upon similar work at the Vanderbilt Clinic and elsewhere before this.

The problem is no small one. It concerns us all, for about 2 per cent of the population has some form of heart disease, according to surveys made in schools, industry and the army. Most of this is contracted in childhood, so the problem has largely to do with the child.

It has seemed to me that we can not lay down a régime for any cardiac child without keeping four main principles clearly before our minds.

First. An accurate diagnosis and classification must be made.

Second. The heart itself must be treated when this is necessary.

Third. The child's health and nutrition must never be forgotten.

Fourth. The portals of entry for infection must be removed as far as possible.

1. It is obvious that an accurate diagnosis and classification are necessary to treat any patient intelligently. It is especially important here, because there has been too much loose thinking concerning heart disease. All cardiac children do not need the same advice and care. In the past, more children have been needlessly restricted in their activity than have been harmed by overexertion, chiefly because the discovery of any murmur has been regarded as an equivalent of a sentence to a crippled life, and probably to a short one.

The diagnosis must be made by thorough history and examination. It must include:

An etiological diagnosis, or search for the cause.

An anatomical diagnosis as to the lesion of the valves and heart muscle.

A functional diagnosis, or decision as to the capacity for work of which the heart is capable.

The first of these must be decided largely by the history, which is by no means clear in a great many children. We must inquire most carefully for the diseases which cause endocardial involvement. Sore throats, infections of the

teeth, scarlet fever, diphtheria, etc., are the primary infections resulting in chorea, rheumatism, joint, bone, or muscle pains, torticollis, or the skin conditions which we associate with rheumatism (erythema, nodosim purpura, etc.). Syphilis is a very rare cause of heart disease in children. It is a matter of no small difficulty to elicit a history of these conditions, but perseverance will often bring out facts which the mother has almost forgotten as they seemed to her so insignificant. At times we must confess that it is impossible to obtain any history of antecedent infection.

The valve and muscle lesions, as determined by the size, sounds and murmurs of the heart, are important parts of the diagnosis, but are by no means the whole story. This is the mistake which is most often made. As a matter of fact, the type of lesion makes less difference to the child than some of the other factors.

The functional or hemic murmur must not be forgotten as the one most commonly encountered.

The functional diagnosis can not be made out so easily. A decompensated heart offers us no great difficulty, for the patient's incapacity for exertion tells the story all too plainly. But in children with fair compensation, it is not always possible to say offhand how much exercise should be taken. Certain tests which note the rate of rise and fall of blood pressure after measured exercise with dumb bells and stairs, have been devised by Dr. Barringer and applied to children by Dr. May Wilson and others. These give us perhaps the most scientific measure of the heart's capacity for work. However, the size of the heart, the character of the apex impulse, the quality of its action, and the general behaviour of the child upon exertion will give a fair idea as to what he can and ought to do.

When we have complete diagnoses, we can classify our patients. Cardiac classification is still in process of transition, for none has been found which satisfies us all.

It is agreed that the cardiac problem does not deal alone with organic cases, but must include two other groups. First, potential heart disease includes the children who have suffered some of the infections which commonly affect the heart, especially rheumatism and chorea. Such children must be watched and treated, for it is on them alone that our chief preventive work may be done. Second, possible heart disease includes all the patients with abnormal physical signs—functional murmurs, arythmias, enlargements, etc.—but with no definite or certain heart disease. They need watching, for errors in diagnosis may have been made and organic disease may be present in its early stages without typical signs. The organic group includes congenital and acquired cases. They may be divided into those who have never had symptoms, those who have had symptoms but have recovered, and those who have symptoms at present. The latter may be able to carry on slightly diminished activity, greatly diminished activity or practically none at all. The last means complete decompensation.

It is perfectly obvious that all these groups of patients with heart disease need different advice and, therefore, we must carefully classify each case before laying out rules of conduct.

2. This brings us to the second fundamental point, the care of the heart. The organic heart cases alone need be discussed, for the other groups have no heart lesion of importance. In the children who have never had any symptoms, the heart need be considered very little. With definite organic disease perhaps it is wise to warn them against the most violent exertions, but the heart muscle can be trained up to its handicap better by moderate exercise than by mollycoddling. When there is diminished exercise tolerance, the amount of exertion allowed must be prescribed with care in

each individual case. Some children may play all but running games; others may walk freely, but have to be careful on stairs; others may walk only a very little and can climb no stairs at all. These matters may be judged very largely by the story which the child and parent tell as to his reactions to the different forms of exercise, as well as by the functional test. When decompensation exists or seems imminent, bed care is, of course, necessary at home or in hospital, with stimulation and so forth, where indicated.

We have learned a good deal about the hospital care of the severe cases since this systematic observation has been under way.

In former years and, I fear, in many hospitals to-day, a cardiac patient is admitted, the staff listens to the murmur and makes a diagnosis, and then after the most urgent symptoms have abated the patient is discharged, to go home, often directly back to work or school. The result is that he is back in a few weeks and becomes the notorious cardiac repeater.

We have found it profitable to our hospital service at Bellevue to keep for a long time, for many weeks or often for months, the child with heart disease which needs hospital care. When he has gotten as much out of his hospital stay as possible, we send him to a convalescent home for two or three months more. This single long period of rest is infinitely better than many short ones and saves the hospital expense in the end.

3. It has seemed to me from the start, and more than five years observation of children in a cardiac class have only served to strengthen this feeling, that one of our greatest possibilities of helping the cardiac child lies in the direction of the improvement of his general health and nutrition. Many of these children are undernourished and anemic. Of the organic cases in the class at Bellevue four years ago, 70 per cent were underweight. The habits of life of most of them are characterized by the breaking of almost every law of health. Nearly all are spoiled, for the parents have feared to discipline them lest they "drop dead." If the nutrition of the body and the quality of the blood can be built up in these children, surely the heart muscles should profit with the other tissues. As a matter of fact, it is our experience that if a cardiac child is undernourished, his heart will improve step by step with improvement of his nutrition. Unless the health and nutrition can be improved, it is unusual to see great improvement in the heart. A child's deep-seated impulse to grow and gain will have its way, unless there is some overwhelming cause to prevent it. Therefore, growth and gain are our best measures of health.

How can we improve nutrition? It is here that our rules of hygiene are all important. We must teach the child and parent what is a proper hygienic mode of life. We must lay out a schedule for the day's activities, which prescribes every single thing which the child does during the day. We must order the time of retiring and rising (7 to 7, as a rule). The rest after the midday meal should be kept up whenever possible.

The diet must be prescribed in detail and this should be a good nourishing diet suitable for any child, with plenty of cereals, milk, vegetables, fruit, eggs and some meat. Meat should not be forbidden. It should be taken by all children, not only because it is almost impossible to keep a child from becoming anemic on a meat-free diet, but also because we feel that meat has no relation whatever to rheumatism. The same may be said for "acid fruits" which have been interdicted without any reason in the past.

The bowel function should be regular and always after breakfast, for a delayed action allows absorption. This is one of the essentials to good health.

The question of fresh air at night and by day is important and must be discussed with the parents in full. Bathing

makes for good health and must not be overlooked.

The question of school always comes up and must be settled on its merits in each case. It should not be continued when it is too great a strain on the child's health or heart.

All these directions must be given with great detail and care. Printed directions save much time and effort, since verbal instructions are rarely remembered, and written ones are rarely given by the doctor on account of the time involved. They should be filled in for each individual case, however, or they lose much of their force, and should be gone over carefully with the parent and child to be sure that every point is understood.

The child with heart disease must learn all these rules of health, and must learn to obey them all every day of his life.

4. The commonest portals of entry which are accessible for treatment are the tonsils and teeth. The latter must be put into good condition and, what is more, must be kept so. Decayed teeth should be filled or pulled even if they are only first teeth. It is not desirable to attempt complicated root canal work as a rule, on account of the danger of further absorption from apical infection. The tonsils ought to be removed *in every case,* for they are so much the most common portals that the risk of leaving them in is unjustifiable. The children should be fit to endure the operation, however. Cases which are anywhere near decompensation should not be operated upon. Before operating it is often wise to build up to some extent the health and nutrition of a very badly nourished child, even if the cardiac condition might stand the operation. It must be understood that this excuse should not be used to the detriment of the child in postponing any urgent operation too long. These very thin children often recover very slowly from the effects of tonsillectomy if allowed up too soon. We keep all patients in bed for one week at least after the operation, which lessens the shock and rests the heart as well. The child usually recovers the lost weight very rapidly.

The potential cardiac needs, in general, the same treatment as the organic case, except that exercise short of overfatigue need not be restricted. His health and nutrition are all important. Whenever it is possible, his portals of entry should be removed. There should be continuous observation for the first sign of relapse of the rheumatism or chorea cardiac involvement, and the disease may be arrested if the child is put to bed at once and not allowed to run around with active chorea or advancing heart disease.

The cardiac classes have proved to be a most economic way of caring for large numbers of heart cases. They provide continuous observation and a consistent policy of treatment which is what has been most lacking heretofore. By pooling their experience in the Associated Cardiac Clinics, they are using much the same methods and the standard of care is constantly being raised.

Ten years ago no convalescent home would receive a heart case. To-day there are 8 homes with a capacity of 275 beds available for the care of cardiacs; 900 cases were accommodated in them in the last six months. It was necessary to educate the managers of these institutions, and to demonstrate to them that the danger of having the patients drop dead was a negligible one. Several homes receive only cardiacs, and give them excellent treatment.

The essential thing is that each child ought to be kept a long time, two, three or even six or eight months. Here again one long stay is better than several short ones. The best cases are the undernourished ones who can be built up in health and strength. This type of home can not care for the severe or decompensated cases, as a rule.

The education of cardiacs offers the greatest difficulties, for they miss more time and are more generally retarded in school than any other group of children.

Many special classes have been established in schools and have done admirable work in keeping these children under observation. A large majority of children with organic heart disease can attend the ordinary school classes, because their exercise tolerance is normal. Even when it is somewhat diminished, by taking time on stairs, a good many children get along perfectly well.

The convalescent homes need to consider education also, and school classes are held in many of them, and instructions given in needlework, knitting, etc.

Vocational training is a branch of cardiac care which we have barely touched. A great deal has been done by the Bureau for the Employment of the Handicapped, but there is much still to be done. We need many trade schools which will teach sedentary occupations to the adolescent cardiacs, so that they may be easily kept out of heavy work. There are many such occupations, e. g., watchmaking, engraving, bookkeeping in the skilled group; the lighter trades in the less skilled, and timekeeping or similar work for the less intelligent.

Our present plan is a great step forward. The classes are caring for the ambulant cases as never before. The hospitals and convalescent homes are handling their part better, though there is still room for improvement.

The hopelessly crippled child still needs one more type of care—that which he would receive in a chronic cardiac home. These poor children can not be kept in hospitals indefinitely and yet they need continuous hospital care. There is no greater opportunity for charity than in the establishment of a refuge for these severe advanced cases, where they may be kept happy and comfortable, and taught some interesting occupation for the time they have to live.

What are the results of systematic care of children with heart disease? They are hard to estimate accurately, yet they have been unexpectedly good. The prognosis of heart disease is certainly better under this type of care than under the old expectant method, sitting with folded hands, waiting for reinfections and repeated fresh heart involvement. St. Lawrence's statistics on the incidence of rheumatic infection before and after tonsillectomy have demonstrated by actual figures that this operation markedly diminishes the likelihood of recurrences. So we can do much preventive work both on the potential and organic cases. By building up the health, strength, and nutrition we increase resistance to infection and give better nutrition to the heart muscle as well. By continuous observation and watchful care of the heart, we save attacks of heart failure.

A great many of these children are doing unbelievably well in the cardiac classes. Many are getting well, as far as function is concerned. It may be that time will show us that heart disease, when given proper care, is not so serious a matter after all.

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PRACTICAL MEANS OF REDUCING MATERNAL MORTALITY

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New York City

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NO discussion of this important and interesting question can be of social or scientific value unless the morbidity and mortality of both mother and child are grouped together; for such a union is inevitable in every attempt to develop constructive measures. The title of the paper, however, limits my remarks to the mother alone. In considering the mortality-morbidity rate of the mother it

is difficult accurately to gauge either the number of deaths indirectly due to childbearing or the amount of invalidism, whether partial or complete, resulting therefrom. The wider my experience, the greater my conviction, that in both instances the toll is very high.

Child bearing *is* a natural function of the body, but this does not imply that it is necessarily a normal one! Actual facts point to quite a different conclusion. Robust health is unfortunately no bar to the complications of pregnancy. A severe indictment it is, of the public conscience, that as many women die to-day in the United States from parturition as died fifteen to twenty years ago. In fact, recent statistics point apparently to an actual increase of the death-rate; this, too, despite the fact that deaths from almost every other surgical or medical condition have decreased. The real explanation rests upon public and private ignorance as to the perils of this so-called natural process and to the difficulties of changing this ingrown belief. It is true that in certain favored communities very definite and striking improvement is taking place, but I am speaking of the country as a whole.

Twenty or more thousand women are practically certain to lose their lives this year from causes incident to motherhood, and yet we are confident that at least one-half of these lives could be saved with reasonable prenatal and natal care. The evil effects of parturition upon virtually all subacute or chronic medical conditions cannot be overestimated. This is most marked in the presence of tuberculosis, renal affections, high blood pressure cases, heart conditions, psychoses and the generally subnormal, highly civilized women of certain groups of society. Gynecological surgery is intimately concerned with cases of obstetric trauma in some form. Tubal infections, moreover, will not infrequently spring up or spread as a result of an abortion, or of childbirth, despite the best of care. Further, much invalidism is the direct result of either spontaneous or criminal abortions, which occur with unbelievable frequency. The great majority of women receive little or no supervision at such times and in consequence develop either severe sepsis or a mild form with resultant menstrual disturbances lasting often for months at a time.

I believe I am correct in stating that the greater the experience and the closer the relationship of the internist to medical conditions accompanying pregnancy or arising in its course, the greater will be his belief in the damaging effect of pregnancy on the conditions I have just cited.

Such, in brief survey, is the condition confronting us. The picture seems a trifle gloomy. I have no desire to have the dark side overdrawn. Propagandists and theorists may at times overstate the case in their zeal; but we have now sufficient accurate data to warrant greater effort along constructive lines.

Fortunate it is for our great army of mothers and would-be mothers that each of the past five or six years has shown an ever-widening interest in their welfare. The awakening in this regard has been quite startling and certainly most gratifying, but so far the movement has been of rather limited scope. How are conditions to be improved?

The answer can be given in a few words, but the accomplishment can be obtained only after constant and serious endeavor.

Improvement will take place, first, by raising the standards of medical teaching in obstetrics as well as in the state requirements for the practice thereof; second, by stricter regulation of midwives and their elimination when possible; and, third, by widespread education of the public in the essentials of maternity protection.

I. IMPROVEMENT IN MEDICAL TEACHING

Medical school authorities, except to a limited degree, fail to realize the real relationship of obstetrics to the com-

munity. The necessity of thorough clinical work in this line is not as yet sufficiently appreciated. State requirements have been far too lax. As a result, the student is usually given the minimum amount of practical work and a minimum amount of time in either hospital wards or dispensary. Theoretical teaching on the whole is fairly good; but less and less of this should be given in the classroom and more and more in the clinic. It is gratifying, however, to learn that at present an increasing number of states are adopting for registration purposes the standards presented by the Standardization Committee of the American Medical Association (i. e., each student must have witnessed at least twelve confinements and must have had entire charge of at least three of these). The three great fundamentals the student should learn are (a) thorough familiarity with the normal, whether during pregnancy or labor; (b) recognition of the fact that foresight or prevention is absolutely essential to success; that prenatal care, properly given, will win more than one-half of the battles, and that strict asepsis is fully as essential as in general surgical practice; and (c) recognition of his own status, that is, that he is not a specialist on graduation; that meddlesome midwifery accounts for many deaths, many needless complications and much invalidism.

Merely because childbearing happens to be natural to womenkind, it is taken for granted that any doctor or any average midwife is competent to see these patients through the most trying experience of their lives. As I have remarked before, why, if it is deemed wise by the American College of Surgeons to require special training in surgery before a man is judged capable of practicing surgery, is it not just as important that anyone attempting to care for other than normal deliveries, should likewise be required to have special training?

The physician must ever remember that there are two lives at stake; that he is responsible for the life and the near future of both. Too much attention is given to striking operations, too little to the every-day essentials. There seems to be a setting aside of essential truths proved through years to be of inestimable value, and the tendency to resort to surgery on slight provocation. The great majority of babies can still be born *per vias naturales*. Cæsarian section, difficult versions, and forceps operations are for the specialist, and are, in the long run, necessarily hazardous in the hands of the partially trained. Though speaking so positively, I am yet familiar with the fact that real specialists are far too few in number and that the family physician, particularly in rural sections, is thrown on his own resources and usually labors under most trying conditions.

II. THE MIDWIFE

Lack of coöperation on the part of the midwives is a difficult problem in prenatal work, and yet it is most important to secure their confidence. They are naturally suspicious of the nurses, and for the most part are convinced that both the clinics and the nurses are scheming to take away their patients. As a matter of fact, this is far from being the case; at least, in New York City. These midwife cases are the very ones that should be reached by educational methods, for with but few exceptions, they receive no oversight during pregnancy. Greater care should be exercised by the authorities in the granting of licenses. The surest way to eliminate the midwife, if such elimination is desirable, is by continually raising the standards demanded of her. In time, perhaps, she may be totally eliminated, but to attempt to bring this about at the present time, particularly in crowded foreign areas, would accomplish but little good and would unquestionably greatly increase the discomforts and sufferings of the poor women amongst whom they practice. We probably all be-

lieve in the need of the strictest sort of supervision and in her gradual elimination, but as we restrict her practice, so much the more are we obliged to give the poor parturient woman something better in her stead. I feel quite confident myself that in large foreign communities, at least, the only ways in which these midwife patients can be cared for, if the midwives are eliminated, are (a) by increasing the outdoor services of obstetrical hospitals; (b) by giving certain nurses special training in handling normal labors, and (c) by developing voluntary community health protection.

III. EDUCATION OF THE PUBLIC

Turning from the consideration of medical teaching in obstetrics and from the midwife, the great approach to the public will be along the lines of achievement through prenatal care. When the public, far and wide, once appreciates from reliable statistics the real issues and learns what in general can be accomplished by proper, or at least by *some* supervision, of the expectant mother, it will in time demand both improvement in the supervision of pregnancy and better standards during childbirth.

To reduce maternal mortality and morbidity, the public must be reached and not one, but many, lines of approach will have to be followed in order to change the general viewpoint.

In developing work of this character in any community, bear in mind that the saving of lives and the lessening of morbidity are primarily medical in their nature and, therefore, every organization attempting it should have the strongest kind of medical support. The work will at times be initiated by the physician, but more often by others. This does not minimize the obligation of the profession to the general welfare of the community. The nurse, in all prenatal work, is the greatest blessing money can bring to the expectant mother, but I stand strongly on the ground that it is the doctor, in consultation with the nurse, who should determine what is best for the patient. There is a tendency in these days, partly, to be sure, because of the lack of constructive ideas in public-health matters on the part of physicians, for certain nursing groups or for welfare organizations to enter the socio-medical field with far too little medical advice.

The essentials of prenatal care are these:

First, to encourage all pregnant women to seek the advice of a competent physician as early in pregnancy as possible. This step is a difficult matter to bring about because of the prevailing ignorance on the subject. It is a measure considered of doubtful value by some physicians, but one of the highest value, on the contrary, by those who have made a special study of early pregnancy.

The advantages of this are, namely:

1. The examination itself is of the greatest importance, for from it one learns of the presence or absence of any abnormal condition.

2. The advice a patient will obtain as to diet, habits, etc., is invaluable.

3. She should receive illumination regarding some of the essential phenomena of pregnancy, so that mystery, if possible, may be eliminated.

Second, to have one or more public-health nurses of special training, working in conjunction with a hospital or with outside physicians. It is the nurse who follows up the patient in the home, who advises with her and gets her confidence. Roughly speaking, each patient should be seen twice monthly by either doctor or nurse, depending on circumstances, up to the beginning or end of the seventh calendar month; then once a week. At each visit the general condition of the patient is studied; special symptoms are looked for such as headache, edema, breathlessness, staining, conditions of the intestinal tract. The approximate size of the child is determined and the fetal heart rate taken. The urine is examined for albumin in particular, and the blood pres-

sure taken. The nurse is taught to carry out this routine exceedingly well. Were this not so, our prenatal nurses would not detect as many abnormalities as they do.

Third, where a family is in want or at least in need of some help, a trained social worker will prove an invaluable coöperator. In illness of the mother, some one must relieve her of her burden in the home.

Fourth, all abnormal cases demand hospital care where such is available. Maternity hospitals or general hospitals devoting a certain number of beds to maternity cases are, alas, far too few. Even in our large cities results would be better, could more cases of difficult labor be sent to them. In country districts this question is particularly vital and unsatisfactory because of great distances and because of the fact that, out of the three thousand or more counties in the forty-eight states, more than half have no hospitals of any kind. With such a serious situation, coupled with the decrease in the number of rural physicians, it is obvious that upon the public-health nurse will fall the chief burden of teaching and watching over the expectant mother. The largest item in the expense of this work, either in the city or in the country, goes to the payment of the salaries of these public-health nurses. I am here reminded of the words of Miss Fox of the Red Cross, "Whenever there is a public-health nurse provided and her presence in a town or in the county becomes known, she is immediately surrounded by the women of that territory begging her to come to their homes and help them with their problems. The nurses will tell you they are distressed beyond measure because there are so few of them and they have such large territories to cover that they cannot possibly at present respond to the demands upon them."

We probably differ as to the means of carrying on and developing this work. Each community calls for special consideration, but I, for one, believe that wherever hospitals are available, provided the directors can furnish the necessary funds, this work should be begun by them. They are the logical ones to do it. Where there are no available hospitals or where the funds are lacking, the work can be initiated by some social welfare body. The work can be begun by one doctor and one nurse. Individual boards of health have, it seems, the right and the duty to educate the people in the needs of prenatal care. They can require definite standards both from doctors and midwives. Teaching in prenatal care should be a definite part of the work of the public-health nurse. I see no reason why the state should not engage in all forms of preventive teaching. *I am not implying treatment on its part.* A wonderful opportunity presents itself, particularly in rural sections, for such teaching!

There are to-day groups of persons—some highly trained—whose opinion calls for respect; there are others who are merely opportunists, who decry as paternalism all forms of state or national aid in matters pertaining to the welfare of mothers and young infants. These persons do not decry state or federal aid to education; in fact, they demand it. The farmer expects and receives assistance from the Department of Agriculture; the manufacturer does not call it paternalism if the government lends his particular industry support through a high protective tariff. All we are asking at present is educational help along the lines we are discussing, together with preventative nursing care by the several departments of health nurses. Why this is paternalism I do not see. Motherhood demands our attention. So far we have given a bare minimum. By all means, let the socially minded among physicians take the lead if they will; or, if they cannot, then encourage welfare agencies and as many as possible of them to undertake this noble work, but if the public still remains in ignorance of the life-saving and life-giv-

ing measures we advocate, then I, for one, believe in appealing for federal and state assistance. Do not misunderstand me when I mention the latter, for I know full well the dangers connected with such a course. You will note that I suggest federal or state help only when other methods have failed.

In closing, may I emphasize the two fundamental problems which we hope to study during the coming year and which, after all, are essential to the proper understanding of this whole question.

These problems are:

1. What is the irreducible minimum of prenatal supervision consistent with the results we wish to attain?

2. What relationship does the economic status of the family bear to this irreducible minimum?

□

PROPER SIZE OF SAND FOR RAPID SAND FILTERS

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Read before the Sanitary Engineering Section, Fiftieth Annual Meeting, American Public Health Association, New York City, November 17, 1921.

THE question of proper size of sand for rapid sand filters has been a debated one from the time when filters of this type were first used for the purification of public water supplies. There still exist differences of opinion among engineers and others engaged in filter plant design, construction and operation. Originally the use of rather coarse sand was general, but in recent years there has been a tendency toward the use of finer material. However, coarse sand is still frequently specified by engineers and others who thus far have failed to recognize its inferiority to fine sand as a filtering medium.

In discussing this question I shall state briefly the conclusions reached from experience with Ohio filtration plants during the past five years. There has been afforded an excellent opportunity to observe the effect of size of sand upon plant operation and efficiencies, by the existence of fifty-four plants varying greatly in size and handling raw waters of wide variety. The State Department of Health has exerted general supervision of the operation of these plants, receiving reports of daily records of operation made by the engineer or superintendent in charge of each plant. The value of these reports has been enhanced, due to the fact that the larger plants of the state are under the constant supervision of men of technical training and experience. Fifteen men of this type are employed throughout the state and each of them may be said to be an expert in this field. This system of plant operation with general supervision by the state has resulted in producing better public water supplies and has revealed facts which have permitted conclusions to be reached regarding plant design and operating procedures and results. The following general conclusions have been drawn:

1. The final product of a filtration plant after disinfection of the filtered water should show absence of gas formation in ten cubic centimeter samples incubated 24 hours at 37 degrees in lactose broth.

2. The plant as a whole should be designed and constructed so as to permit it to produce a final product as above defined, when the worst condition of raw water prevails, without introducing serious operating difficulties.

3. The plant should be operated so that each part of the purification process will produce its proper share of efficiency with due regard to avoidance of overloading any particular process. Disinfection, in connection with filtration, should be applied to the filtered water as

a factor of safety only and should not be depended upon as a major process of purification of the water.

The adopted standard of quality for the final product of a filtration plant is a very strict one and, as disinfection is recognized only as a factor of safety, the production of water meeting this standard requires excellent design and operation with proper control and maintenance of the plant. The application of this standard does not mean that gas formation is always absent in ten cubic centimeter samples, as occasional positive presumptive results, perhaps in five per cent of samples tested, are almost inevitable. However, the effort is directed at minimizing the number of positive tests. This result, with the disinfection treatment at a low rate as a safety factor, obviously requires that the filtered water before disinfection shall be of a high degree of purity. The approximate standard set for the filtered water is that not more than twenty per cent of ten c. c. samples during the month shall show gas formation. This result is to be obtained by sedimentation, coagulation, softening, and filtration, according to the development of the plant, and not by disinfection, except perhaps in the case of a softening plant where the excess lime treatment is employed. With the problem of producing such high efficiency not only under average conditions but also when the raw water is in its worst condition it seems evident that each process of the plant must be equipped, maintained and operated in the best possible manner to enable it to perform its part of the work.

A study of the efficiencies of Ohio plants revealed important facts regarding the effect of size of sand. It was found that those plants having coarse filter sand (effective size approximately .6 mm. or more) were not producing satisfactory efficiencies with regularity and that a considerable dependence upon disinfection was necessary to produce a final product of bacterial purity. It was also found that plants having fine filter sand (effective size approximately .45 mm. or less) were producing, with regularity and without difficulty, a filtered water of high degree of purity permitting disinfection to be applied as a factor of safety only. Furthermore, a study of the plants of each class showed that no important differences existed in kind of raw water, plant design, method and control of operation or other features except the sand used as a filtering medium. The following are examples of plants equipped with coarse sand which failed to produce satisfactory filter efficiency:

City	Population	Source of Supply	Date Installed	Sand E. S.	Sand U. C.	Analytical Control
Alliance	22,000	Mahoning River	1913	.63	1.22	Constant
Cambridge	13,000	Wills Creek	1917	.67	1.13	Constant
Cleveland	800,000	Lake Erie	1917	.61*	1.27	Constant
Portsmouth	33,000	Ohio River	1914	.59	1.49	Constant

*The sand at Cleveland was .55 mm. when installed and increased in size due to incrustation.

The following are examples of plants equipped with fine sand which produced a satisfactory filter efficiency:

City	Population	Source of Supply	Date Installed	Sand E. S.	Sand U. C.	Analytical Control
Akron	200,000	Cuyahoga River	1915 & 1919	.39	1.58	Constant
Cincinnati	400,000	Ohio River	1907	.39	1.21	Constant
Sandusky	23,000	Lake Erie (Sandusky Bay)	1909 & 1914	.43	1.35	Constant
Warren	27,000	Mahoning River	1917 & 1921	.37	1.24	Constant

A study of the filter efficiencies for 1920 and 1921 of three plants having coarse sand reveals an average bacterial removal (20° counts) by the filters of 65 per cent, while the average bacterial removal for filters equipped with fine sand in three other plants was 90 per cent. These figures may not measure accurately the value of the filters in removal of gas-forming organisms but the rela-

tion of coarse and fine sand in this respect is probably indicated.

It appears probable that the inefficiency of coarse sand is explained by the theory of the manner in which filter efficiency occurs. This theory is that the sand is in reality a supporting medium for the film which forms at the sand surface and that this film itself is the filter which entangles and holds the bacteria. This film may penetrate the sand to some extent but in general is held at or near the sand surface. The coarser the sand the larger will be the interstices, and the more difficult will be the proper support of the film. It seems reasonable to suppose that with coarse sands numerous breaks of the film occur, particularly when a high loss of head is built up. Most of these breaks may not be sufficient to show indication on a loss of head gage but probably do affect the bacterial removal produced by the filter. If this is the case the use of a fine sand appears to be the reasonable solution.

When the results of the study of filter plant efficiencies were available, indicating the undesirability of coarse sand, it appeared logical to conclude that all new filters should be equipped with a rather fine sand, and that existing filters should be overhauled and fine sand used to replace coarse. The following tentative specifications for size of sand were adopted: "The sand shall have an effective size between the limits .35 mm. and .42 mm. and a uniformity coefficient not greater than 1.8. Preference will be given to a sand having an effective size of .37 mm. and a uniformity coefficient not exceeding 1.6, all particles of which are finer than 1 mm."

It is important to recognize also the probability that sand of satisfactory size when placed may become incrusted and thus become much coarser, if lime is used in the treatment of the water. In such cases it is necessary to watch the sand carefully and to take proper steps to remove the incrustation or replace the sand when necessary. It is likewise important to keep a close observation upon the condition and size of the sand regardless of the chemical treatment of the water used, and it may be found desirable to re-sand filters at intervals to maintain proper sand condition.

All new plants constructed in Ohio during the past two years have used sand in accordance with the above specifications, and a number of the existing plants originally equipped with coarse sand have substituted fine sand in the filters. The results in each instance have been satisfactory. The bacterial efficiencies of the filters have been high, and no serious difficulties in any of the plants so equipped have been encountered in producing the desired results.

Various objections to the use of fine sand in rapid sand filters have been raised. It has been claimed that sand such as specified will cause rapid surface clogging, increase the loss of head, shorten the filter run and increase the percentage of wash water. Another claim is that an excessive loss of sand will occur through the underdrainage or strainer system and by being carried out with the wash water. A third objection raised is the added cost for sand if the limitations as to size and uniformity are rigid. Judging from the experience in Ohio none of these objections appear to be well founded.

The use of wash water at the Cleveland and Cincinnati plants for 1920 was identical, being 1.4 per cent in each case. Cleveland has coarse sand and Cincinnati fine. The Ironton plant (4 M. G. D. capacity) with .41 sand used 2.0 per cent wash water during 1920. The Portsmouth plant (8 M. G. D. capacity) with .43 sand used 1.7 per cent wash water in 1920.

As regards loss of sand, the plants at Cincinnati, Ironton, Akron and Warren having sands varying from .37 to .41 and each employing high rate wash, have not experienced loss of sand by carriage into the wash water troughs. Experience with these plants also demonstrates that the

passage of sand into the underdrainage system is readily prevented by providing properly graded gravel layers and by placing a suitable intermediate layer of coarse (torpedo) sand between the filtering medium and the gravel.

The experience with the plants at Cincinnati and Ironton are of particular interest. The Cincinnati plant, installed in 1907, treats Ohio River water and comprises primary sedimentation basins, coagulation basins with iron and lime treatment, rapid sand filters and chlorine disinfection treatment. The filters were designed for high rate wash and in constructing them care was taken to provide a proper underdrain system and a well graded gravel to support the sand. The sand as originally placed had an effective size of .33 mm. In July, 1920, after thirteen years' operation, examination of the sand showed an effective size of .39 mm. and a uniformity coefficient of 1.21. It was also found that the lime incrustation of the sand was 21 per cent, accounting for the increase in the size of the sand. Observations of the elevation of the sand surface showed that no loss of sand had occurred. Throughout the period of its use the efficiency of the plant has been very high. This is also true of the filter efficiency, and as a consequence the filtered water has been of such good quality that disinfection has been used as a factor of safety only.

The Ironton plant, installed in 1919, also treats Ohio River water. The plant comprises primary and secondary basins furnishing ten hours retention, rapid sand filters and chlorine disinfection equipment. Alum is used as a coagulant, supplemented at times by lime. The filters were designed for high rate wash and are equipped with Wheeler bottoms and well graded gravel to support the sand. The sand as originally placed had an effective size of .39 mm. and a uniformity coefficient of 1.51. A sample of the sand taken from the filters in July, 1920, after seven months' operation, showed an effective size of .41 mm. and a uniformity coefficient of 1.32. Another sample taken from the filters in October, 1921, showed the sand to have an effective size of .44 mm. and a uniformity coefficient of 1.32. Unfortunately no determinations were made to ascertain the extent to which lime incrustation of the sand had occurred. These results indicate that a slight increase in the size of the sand had occurred during approximately two years' operation. This may have been due to incrustation or to the loss of the finest sand grains. No noticeable loss of sand has occurred as measurements made at various times have shown that the sand surface is at the same elevation as it was when the sand was originally placed. During the two years of operation the filters have produced a satisfactory efficiency and no difficulty has been encountered in producing filtered water of quality to permit the use of disinfection as a factor of safety only.

As regards the increased cost resulting from the use of sand meeting the specifications suggested in this discussion, it must be admitted that the cost will be greater when rigid specifications for sand are adhered to. However, in any event the sand cost is an insignificant item in relation to the total cost of the plant, and if, as appears evident, there is an important advantage to be gained by using the more costly sand, this objection fails. For instance, it may be admitted that an undesirable sand may be placed in the filters at a cost of five dollars per ton and that sand meeting rigid specifications will cost ten dollars per ton placed. For a filter capacity of one million gallons per 24 hours the costs would be $225.00 and $450.00 respectively. Either figure apparently represents a low percentage of the cost of the plant or even the filters themselves. Therefore, cost considerations should not interfere with the use of the best sand available.

DISCUSSION

It gave me pleasure to learn that Mr. Dittoe had undertaken the preparation of a paper on the proper size and grading of sands for filter plants. Consulting engineers rarely have an opportunity to follow up the operation of any plant for more than a year, whereas the State Board of Health, charged with the duty of general oversight of all filter plants, has them under constant observation and has a much better chance to observe not only the initial result, but also the continuing behavior during a period of years.

Mr. Dittoe presents data in substantiation of his requirement of an effective size around 0.37. He also disposes of the oft-repeated objections to small-sized sand that it washes away too quickly. The records of 8 plants out of 54 are cited to prove this contention. In this connection it is of interest to note that at Warren, Ohio, where I have just completed work on a six-million-gallon extension to a two-million-gallon plan, three cubic yards of sand passed through the strainer system were found in the settling basins after two years' operation of four 500,000-gallon units, run at times at over double their rate capacity.

I presume that sufficient care has been taken in determining the quantity of wash water used in the majority of cases. At Warren this determination during the past few years has been a mere approximation.

In selecting the sizes of sand at Warren I acquiesced in the desire of the State Board of Health, not only as to the effective size and uniformity coefficient (which are covered by the tentative specifications), but even to the extent of procuring the sand from the particular plant indicated by the Board.

This brings up the moot question as to why the state, in drawing up requirements for the most important element of the plant, should not assume responsibility for the working of the plant, rather than pass along to the engineer and manufacturer of filtering equipment the burden of guaranteeing the overall efficiency of the plant. Where the engineer is held responsible by the city, and the commercial organizations are required to guarantee the overall efficiency of the plant, the extent to which they should be dictated to as to the exact character of the filter medium used, is open to debate.

In complying with the wishes of the State Board of Health, the contractor was obliged to ship in sand for which the cost was $8.00 per ton, whereas he could have procured at about half the price other sand which has in the past given satisfaction as a filtering medium. The analyses of 8 carloads of Ottawa filtration sand (which cost $8.20 per ton, f. o. b. Warren) by the State Board, and checked in the field showed the following:

	Effective size, mm.	*Uniformity coefficient*
Two cars	0.39	1.43
"	0.41	1.39
"	0.39	1.43
"	0.40	1.40
Extra order	0.39	1.44
"	0.40	1.43

Three carloads of regular run, Ottawa sand, which cost $5.70 f. o. b. Warren, tested as follows:

Effective size	*Uniformity coefficient*
0.22	——
0.17	2.12
0.19	2.10

Based upon former analyses, the State Board requested the contractor to use two-thirds filtration sand, and one-third regular run. The sand actually delivered and mixed according to these proportions tested unsatisfactorily, being considered too fine.

Effective size	*Uniformity coefficient*
0.323	1.64

(21 per cent of this mix was finer than 0.4 mm.)

When it became evident that the Ottawa product was not running true to former tests, two additional cars of coarse sand were brought in, and the fine sand in excess was sold to a local dealer

by the contractor for common sand price. A mixture of seven-eighths filtration sand and one-eighth regular run was then tried which analyzed—

Effective size	*Uniformity coefficient*
0.369	1.51

After scraping and washing, a sample taken through the entire bed tested as follows:

Effective size	*Uniformity coefficient*
0.365	1.52

(13 per cent of this was finer than 0.4 mm. Specific gravity—2.67.)

Therefore, at considerable unlooked-for expense and delay, the State Board specifications for size of sand were met.

It seems unfair to put this cost of rejected sand onto the contractor. Beside the expense, a delay of a month or six weeks in the completion of the plant occurred for what is considered by many as unnecessary refinement. Is it really so? If the operating results in the 54 plants under Mr. Dittoe's observation bear out the conclusions based on the 8 plants as tabulated in the paper, there should be no hesitancy on the part of the engineer to purchase the more expensive sand. As Mr. Dittoe explains, the difference in cost of the sands forms a relatively small part of the total cost of the filtration plant. But if the results do not justify the increase in cost and delay, why spend the money? I await with interest data on other Ohio plants.

Bearing out the contention that the limits of the effective size are too narrow, Mr. Dittoe points out that in two years the effective size of the Ironton filter sand, due to lime accretions or otherwise, rose from .39 to .44, which latter figure is greater than the .42 maximum effective size called for in his sand specifications.

Is the efficiency of the Ironton plant falling off? If not, why maintain so narrow limits in the effective size of the sand?

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BOTULISM FROM THE REGULATORY VIEWPOINT

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Read before the Joint Session of the Food and Drugs, Public Health Administration, and Laboratory Sections of the American Public Health Association, Fiftieth Annual Meeting, New York City, November 17, 1921.

THIS is not the place to go into details of the bacteriology of *Bacillus botulinus* and the clinical manifestations of botulism as a pathologic entity. Such data may be readily obtained from numerous recent papers on the subject.[1] On the other hand, every health officer and every food official is confronted with the possibility that the next outbreak of this kind may occur in his own territory. There is good ground for believing the organism of this disease to be very widely distributed. The occurrence of cases is, therefore, not so much dependent upon the presence of the organism, necessary as that is, as upon the presence of the conditions essential to its development.

Two lines of inquiry are, therefore, clearly indicated: (1) What precautions will reduce such cases to a minimum or entirely prevent them and, (2) What action to limit the number of cases shall follow the first evidence of an outbreak?

PREVENTION

In spite of the publicity that has been given to this subject in the last few years, the constant recurrence of cases or groups of cases of botulism shows that many people have entirely failed to understand its real dangers or the means that may be taken to avoid it. Without forgetting the remote possibility of an occasional infection,[2] botulism may be characterized as a food toxemia. The organism must first develop in the food and produce the

poison, then the food must be eaten or there is no disease. Proper advice upon the care and inspection of food products is fundamental in preventing botulism. There is great need, therefore, that every food or health official should not only be familiar with the essential precautions himself, but that he should bring them effectively to the attention of the whole public for whose safety he is responsible. The campaign of prevention should be carried to the packer, the dealer and the final purchaser of food products. Each has a share in the responsibility for such poisoning and each should understand clearly certain characteristics of the causal organism. The packer must use the best known method in putting up food, the dealer must give it intelligent care and scrutiny, but the one who prepares it for the table is the final protector of the life of the consumer.

From this point of view the following characters common to the group of strains included in our conception of *Bacillus botulinus* (*Clostridium botulinum*) are significant.

1. The spores of some of these strains are sufficiently resistant to survive heating processes ordinarily used in cooking.

2. The toxin is readily destroyed by heat. The temperature required varies considerably with the strain of *B. botulinus* used, but in every experiment reported, all trace of toxicity had disappeared in products actually heated throughout to 85 degrees C. for a very few minutes.

3. Anaërobiosis limits the development of the surviving spores to those (a) deep within the mass of food, for example, sausage, (b) enclosed in favorable containers, as well packed canned products, or (c) to those so associated symbiotically with aërobic organisms as to secure the necessary conditions for growth.

4. *Bacillus botulinus* is rarely encountered in pure culture, even in canned food. Other and more resistant anaërobic spore-formers practically always accompany it.[3]

5. The development of toxicity in both pure and mixed cultures is generally associated with commonly recognized signs of spoilage—turbidity of liquor, gas formation, abnormal odor which is usually offensive, or all three of these, and in very many cases pronounced disintegration. The progressive nature of the development of toxin and of the concomitant signs of spoilage necessitate recognition of the possibility that a product may occasionally reach the dangerous stage before the signs of spoilage are readily recognizable.

Brief discussion of these points is desirable:

1. Heat resistance. The recent work of Weiss[4] upon a series of strains of the organism and with an extensive series of food products confirms the work of many others, strain by strain, in showing that under uniform conditions there is much variation in resistance to heat among these organisms. There is even greater variation, due to the nature and especially to the hydrogen-ion concentration of the substratum used. Those products which are neutral in reaction or nearly so are exceedingly difficult to sterilize, whereas the more acid foods are rarely found to contain living spores of *Bacillus botulinus* after cooking in the ordinary way.

2. Of equal importance is the easy destruction of the toxin by heat. Such heating, while not requiring the actual attainment of the boiling point, nevertheless must closely approach that figure to be safe. Cases are on record in which material was assumed to have been heated and yet proved toxic. To be safe, a heating process must raise the temperature of the entire mass to the required figure before all of the toxin in the product is destroyed. It has been shown that 85 degrees C. for 5 minutes is adequate, but the presence of toxin to the very center of masses of food makes it clearly necessary that heat of the required degree should actually penetrate the food before

the danger is eliminated. Merely warming is not sufficient.

3. Anaërobiosis. Although some other species are less tolerant of free oxygen, the organism of botulism is sufficiently sensitive to this element to restrict its development in nature to situations essentially anaërobic. Our human poisoning cases in America have been traced mostly to canned food in which a moderately complete exclusion of oxygen is attained. European cases, on the other hand, have been largely attributed to sausage, which offers finely cut and closely packed flesh with anaërobic possibilities in the mass itself, supplemented by tremendously rapid activity of both aërobic and anaërobic bacteria, as has been shown by Weinzirl[5] and by LeFevre.[6] The demands of anaërobiosis are equally well satisfied by properly packed and exhausted cans of food, by the standard anaërobic technique of the laboratory and by symbiotic relations with aërobic organisms, including bacteria, yeasts and molds as has been repeatedly shown by various investigators.

4. The practical importance of the constant association of other species with the botulism organism is very great. Reddish and Rettger[7] restudied a series of cultures isolated from poisoning cases by different laboratories. In practically every culture, careful examination showed some strain of the *B. sporogenes* group to be present as a contaminant. Extensive studies of spoiled cans of food from batches actually responsible for poisoning have shown many more containers in every series to contain the *B. sporogenes* type of organism than the toxin-producing species. Comparative studies of heat resistance clearly indicate that *B. sporogenes* survives higher temperatures and more prolonged heating than *B. botulinus*. Many individual containers of the batches of canned food incriminated have been studied by us. Dangerous cans of food have been found not as isolated spoiled cans in sound series, but as few or occasional toxic samples among many spoiled samples found in the batch. These observations covering the past three years have forced us to the conclusion that any lot of canned food showing appreciable percentage of spoilage is potentially dangerous. Extensive spoilage is clear evidence of radical failure in sterilization. Batches showing this condition should be withdrawn from the market, carefully sorted and that portion apparently sound should be thoroughly reprocessed before distribution.

5. The association of physical signs of spoilage with toxicity can be easily overemphasized, but scrupulous examination of many series of samples in the toxic condition shows that evidence of spoilage is rarely, if ever, absent in the dangerous sample. Cooking all canned food before consumption is an adequate precaution and should be resorted to in cases of doubt or of ignorance of normal characteristics. In series of commercial canned products examined in the Microbiological Laboratory in which the analyst was already familiar with the product, samples selected as sound and in wholesome condition have never proved toxic in feeding experiments and have never shown evidence of bacterial activity when tested by culture. Physical evidence of spoilage has, on the other hand, been consistently supported by bacteriological examination. Among spoiled products no one of us who has actually handled the material dares pretend to say which of many spoiled products will prove toxic. The typical "botulinus odor" does not exist to us. Samples which have proved poisonous give off odors which are usually almost putrefactive or are at least more or less indicative of protein decomposition. There is, however, so little agreement in nomenclature of smells that the presence of a definitely abnormal odor should be sufficient to condemn the product.

Inoculation experiments in the laboratory yield concordant testimony. Signs of decomposition, as some combination

of gas, odor, turbidity of liquor or disintegration are perceptible by the time toxicity has developed sufficiently for large doses to kill a guinea pig. The times and temperatures required to develop toxic conditions have been found sufficient to reduce the danger of botulism to negligible in opened foods in a well-conducted household.[8] Inoculated cans of food yield in the main concordant results. Although vague possibilities of danger remain, the practice of discarding all food in which signs of decomposition are perceptible is clearly a substantial safeguard if intelligently followed. Careful study of published and unpublished "case" reports confirm the belief that such precautions would have prevented nearly all the deaths concerning which our records are reasonably adequate.

RESTRICTION

The second main question, "How may we limit the number of cases when a botulism outbreak occurs?" is clearly bound up with the discussion already given. The moves open to the food or health official are limited by the particular law under which he operates. A clear understanding of those limitations should be obtained by him in advance of the emergency. This discussion will be limited to the lines of action we have found most useful.

1. When botulism is suspected, the first move advisable is a careful examination of all food left on the premises. This will include all remnants, partially emptied containers, empty cans, garbage, and everything in the storeroom or the ice-box. All should be examined and all material connected with the meals of the preceding days should be gathered and preserved against loss. Where other material is unsatisfactory, feces and post-mortem material should be included.

2. This may be followed immediately by such an epidemiological study as the Ohio[9] and Michigan[10] authorities gave to the cases reported by them. Such a study of the entire history of a case or series of cases usually fairly quickly narrows the possibilities of food as a source of poisoning to one or few kinds.

3. The materials presumptively incriminated by this study should be examined by the nearest properly equipped bacteriological laboratory. Feeding experiments with guinea pigs, rabbits, or white mice (in about that order of preference) are essential in establishing toxicity. These may be conducted by any competent pathologist without waiting for the results of bacteriological examination. Thus the responsible product, if even a few cubic centimeters of it are obtainable, may be fairly quickly located. Graham[11] considers that feeding chickens in addition gives the quickest presumptive differentiation between type A of the *B. botulinus* group which produces limberneck, and type B which in ordinary doses does not affect the chicken. Cultural examination should begin as quickly as possible and include both aërobic and anaërobic tests. The isolation and identification of *B. botulinus* follows lines marked out fully by recent workers.[12] Ultimately, feeding is the final proof of the identity of this organism.

4. Meanwhile the sources of all suspected materials should be found and all possible details of handling determined. If, as in certain recent cases, the containers are identifiable as parts of particular batches with identifying marks, every possible agency, state or national, should be enlisted in the task of removing that particular lot from the market. Scrutiny of whole series of batches from a particular source for evidence of extensive spoilage is frequently necessary and may result in preventing further outbreaks. In the surveys made by the Microbiological Laboratory of the Bureau of Chemistry, dangerous containers of food have been found only in lots in which many other spoiled samples were also found. Conversely, therefore, the presence of appreciable numbers of spoiled samples in a batch calls for careful study

of the entire lot with several administrative lines of action open.

5. Publicity and Embargoes. No producer or dealer can be assumed to have sold poisonous products knowingly. Public charges against the good faith of packer or dealer can rarely be sustained by evidence, but ignorance of the dangers involved in handling spoiled or partially spoiled food is widespread. If a particular sample of a known brand is shown to be dangerous, means should, therefore, be found to prevent the further sale or use of that lot of material. For the most part, the full coöperation of the food distributer is usually gladly given under these conditions. Embargoes of brands or of particular lots are dangerous measures, since, if once placed, their withdrawal is equivalent to certification that the products are safe. Intelligent coöperation between the investigator, the food distributer and the public is much more practical since by this means all suspected products may be immediately withdrawn from consumption during the period necessary for adequate examination. Wherever such examination discloses spoilage in material degree, steps should be taken to destroy the samples obviously spoiled and to reprocess or test adequately the materials not showing decomposition.

Transformed into concrete suggestions, responsibility for food poisoning, in so far as canned goods are concerned, rests about equally upon the dealer and upon the household. Every dealer should be made to feel a direct and positive obligation to remove from sale any can of food which shows sign of spoilage, and to condemn as dangerous and return to the packer any lot in which spoilage appears in considerable percentage. Correspondingly, some one, at least, in every household, should definitely understand the dangers of spoiled food, canned or uncanned, make intelligent examination of all food bought and apply discriminating care to all food stored in the home.

As a basis for propaganda to eliminate the danger of poisoning cases, this discussion leads directly to a series of recommendations which may be given the widest publicity.

a. Clean, fresh, sound food will not cause botulism.

b. Food freshly heated to the boiling point will not cause botulism.

c. Recooking is advised whenever opportunity for microbial activity has been given, but only before spoilage becomes evident by appearance, odor or taste. Food showing signs of decomposition is potentially dangerous, hence physical evidence of spoilage should lead to destruction, not to salvaging.

d. Intelligent coöperation of packer, dealer, and householder in the examination of food before it reaches the table is essential to the prevention of botulism.

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EDITORIAL SECTION

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THE BETTER PART OF VALOR

Varying comments, for the most part encouraging, have been elicited by the resolution adopted at the November meeting of the American Public Health Association, which condemned the indiscriminate multiplication of specialized national health agencies when existing organizations could be made to serve the ends in view. From the standpoint of purely mechanical efficiency the action can, of course, meet with nothing but approval.

The process of elimination and integration had not yet proceeded far enough to warrant predictions as to its success in the near future. But the pressure of circumstance will inevitably accelerate it, as it has stimulated in the field of religious organization the supplanting of the cutthroat competition of inadequate, part-time denominational chapels by the so-called community church. It is, in reality, a far-sighted policy of "enlightened selfishness" enunciated in the resolution. As *Better Times,* organ of the local welfare agencies in New York City, has recently pointed out, the question is ultimately one of coöperation or extinction for the volunteer health agency dependent upon private subscriptions. Coöperation in the fullest sense of the term includes the elimination of superfluity or duplication in any form. It is the public, long-suffering but kind, to which organized public health must look for the sinews of war. The temper of that public will not remain indefinitely complaisant in support of an army of competing health organizations. We may look for an increasing disposition to demand results and an increasing impatience of the inefficiency of separatism, as Mrs. Cannon has warned us in the *Atlantic.*

And with this is involved the problem of presenting a united front when seeking the favor of this same public. No giver, whether of large or small means, enjoys being approached by a score of different organizations, all working

in the same broad field. Here again, common action and a united financial campaign is a counsel of wisdom which is favored by every passing day. It is a welcome note that the A. P. H. A. has sounded, and one which should find response in all disinterested workers for the health of the people.

NEW BLOOD IN THE PUBLIC HEALTH SERVICE

A bill, S. 2764 and H. R. 9261, has been introduced in both houses of Congress and is now before committees providing for the reorganization of the United States Public Health Service and the promotion of its efficiency by the transfer, after a suitable examination, of not more than 550 officers of the Reserve Corps of the Public Health Service, including fifty dental surgeons and fifty non-medical scientists, to the regular commissioned corps of the Service.

The necessity for such action is shown by the expansion of the total personnel of the Service from 2,044 to 15,095 between July, 1917, and May, 1921, although the number of regular commissioned officers actually decreased from 212 to 199. Every one is familiar with the program which has necessitated this expansion: the tremendous task undertaken by the Service under the provisions of the Veterans' Bureau Act, by which disabled ex-service men become the care of the Public Health Service; the increase in quarantine functions by the acquisition of quarantine facilities in all parts of the United States where quarantine stations are maintained; the expansion of the merchant marine threefold within six years, with a proportionate rise in the number of marine-service patients under the care of the Public Health Service; and numerous new duties in connection with immigration, interstate disease control, and coöperation with state and municipal health officials. The small band of regular officers of the Service have struggled valiantly to organize and carry on a work which has expanded enormously in size, complexity, and scope.

The infusion of new blood into the Service by such legislation, the admission of other types of health experts, and the placing of the Service upon an equality with other government services in matters of tenure, pay and allowances, retirement, etc., are other by-product advantages. No increase in appropriations will be necessary for carrying out the provisions of the bill.

AN EXPLANATION

In the report of the Committee on Full-time District Health Officer Legislation of the Conference of State and Provincial Health Authorities, which appeared in the October issue of the JOURNAL, it was stated that it was impossible to present a complete report, owing to the negligence of four members of the Conference (including the New Brunswick Department of Health), from whom no replies to the questionnaire were received.

Dr. Eugene R. Kelley, chairman of the Committee which made the report, wishes to make public the following facts to which Dr. George G. Melvin, present chief medical officer of the Department of Health of New Brunswick, has called attention: The two requests for information from New Brunswick sent out by the Committee were addressed to Dr. Roy H. Magrath as secretary of the Provincial Board of Health. Dr. Magrath has not been secretary since October 1, 1918, and because the questionnaires were addressed to the previous incumbent they never reached the office of the Department. Dr. Magrath's name was unfortunately the last one reported to the secretary of the Conference of State and Provincial Health Authorities as secretary for New Brunswick, and was printed as such in the report of the proceedings of the Conference for the year 1919.

ASSOCIATION NEWS

RESOLUTIONS OF THE SEMI-CENTENNIAL MEETING

In accordance with a recent policy of the Association, the Resolutions Committee at the Fiftieth Annual Meeting thoroughly winnowed the grist of resolutions proposed and presented only a very few important statements for the consideration of the Association as a whole. The following were adopted in this manner without dissent:

RESOLUTION ON MULTIPLICATION OF NATIONAL HEALTH SOCIETIES

WHEREAS, The extensive multiplication of highly specialized independent national health societies threatens to become a hindrance rather than a help to public health; be it

RESOLVED, That the members of the American Public Health Association be urged to discourage the formation of new national health organizations when it appears that any existing agency can be made to meet the purpose.

RESOLUTION ON THE PROPOSED GORGAS MEMORIAL INSTITUTE

WHEREAS, The late William Crawford Gorgas, surgeon-general of the United States Army, freed Havana and the Panama Canal Zone of yellow fever and malaria, thereby saving thousands of lives and making possible the construction of the Panama Canal; and

WHEREAS, The work of the late General William Crawford Gorgas was an epoch in the field of medical science and a milestone in the work of public health throughout the world, in effect proving conclusively that health, even in the tropics, is a purchasable commodity under scientific guidance and administration; and

WHEREAS, It is the desire of the American people to join with the peoples and governments of Central and South America in paying tribute to the memory of General Gorgas, and the proposed Gorgas Memorial Institute, which will be erected in the City of Panama, represents the most fitting way to perpetuate the work of General Gorgas and to render the greatest good to humanity, with its possibilities for the saving of tens of thousands of human lives and the making available of hundreds of thousands of square miles of land for habitation and cultivation by white people; and

WHEREAS, The Republic of Panama, in expression of its gratitude to the late General Gorgas, has already donated the site, the buildings and all necessary equipment for the proposed Gorgas Memorial Institute, representing approximately $500,000; and there is yet required an endowment fund of from three to six millions of dollars to maintain and carry on this great work; therefore, be it

RESOLVED, That the American Public Health Association, assembled in its Semicentennial convention in the city of New York, November 17, 1921, go on record as heartily endorsing the proposed Gorgas Memorial Institute and that the president of the Association be requested to appoint a committee of five to coöperate with the officers and directors of the proposed Gorgas Memorial Institute.

The president appointed the following committee of five to coöperate with the officers and directors of the Gorgas Memorial Institute: Dr. William H. Welch, chairman, Dr. Wickliffe Rose, Dr. Henry F. Vaughan, Dr. Edwin O. Jordan, and Dr. A. T. McCormack.

RESOLUTION ON COMMISSIONING OF SANITARY ENGINEERS

(Passed by the Sanitary Engineering Section and approved by the entire Association.)

WHEREAS, Sanitary engineers have a definite and distinct place in the work of the United States Public Health Service in stream pollution, control of water supplies on interstate carriers, malaria control, ratproofing for plague control, and sewage disposal investigations; and

WHEREAS, The work which has been done by the sanitary engineers of the Public Health Service, particularly in sanitation

and malaria control of extra-cantonment areas during the war has been of great importance in safeguarding health and conserving lives of civilians and of soldiers; and

WHEREAS, The present status of the sanitary engineers in the Public Health Service is unsatisfactory because there is no permanency of position, no established recognition in law of the place of the sanitary engineer; and

WHEREAS, The Public Health Service can not maintain an adequate and efficient corps of sanitary engineers under the present unsatisfactory status, due to resignations from the Service; now, therefore be it

RESOLVED, by the American Public Health Association at its semicentennial meeting, that this Association approves H. R. 7541, a bill introduced in the United States House of Representatives by Mr. Sweet on July 1, 1921, to commission sanitary engineers in the Public Health Service on the same basis as the medical officers in the regular corps of the Service, and that this Association authorizes its president to appoint a committee from among its members to attend the hearings on this bill before Congressional committees and to urge the favorable consideration and passage of this bill at an early date by Congress.

RESOLUTION OF THANKS TO DR. JACQUES BERTILLON

The Vital Statistics Section, in deep appreciation of the work of Dr. Jacques Bertillon, secretary-general of the International Commission for the Revision of the International List of Causes of Sickness and Death, and as evidence of its love and esteem, has transmitted to Doctor Bertillon the resolution illustrated below, which was unanimously adopted by the Section at the recent meeting:

AMERICAN PUBLIC HEALTH ASSOCIATION

SECTION ON VITAL STATISTICS

Dr. Jacques Bertillon, Paris, France.

WHEREAS, Dr. Jacques Bertillon has served for over twenty years as the Secretary-General of the International Commission which has recently made the third decennial revision of the International List of Causes of Death

WHEREAS, Dr. Jacques Bertillon is recognized the world over as the father of international nosologic nomenclature,

WHEREAS, Dr. Jacques Bertillon, though in ill health, has recently carried through successfully the arduous labors connected with the third decennial session of the Commission already referred to,

BE IT RESOLVED, That the Vital Statistics Section of the American Public Health Association express to Dr. Jacques Bertillon, Secretary-General of the International Commission for the Revision of the International Classification of Causes of Sickness and Death, appreciation of his untiring efforts to procure comparable international statistics of sickness and mortality, and extend to him the good wishes of the Association for his rapid and complete recovery.

Unanimously adopted:
November 18, 1921,
New York City

Eugene Lyman Fisk
CHAIRMAN.

Richard E. Lappin
SECRETARY.

LIST OF NEW MEMBERS

Proposed for Election to the A. P. H. A. November 1 to November 31, inclusive.
Names of Sponsors are set in **Bold Face Type.**
Names of New Members are set in Light Face Type.

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Charles H. Lerrigo, M. D., 1317 College Ave., Topeka, Kans. Registrar Vital Statistics for Kansas.

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Mr. F. Gardner Legge, Jr., Dept. of Health, Detroit, Mich. Sanitary Engineer.

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Dr. Thomas D. Wood, New York, N. Y.
Miss Marion Lerrigo, 1230 Amsterdam Ave., New York, N. Y. Public Health Student.
Miss Elizabeth K. Marchant, 1230 Amsterdam Ave., New York, N. Y. Student.

Mr. Kenneth Allen, New York, N. Y.
Mr. R. Harrison Eagles, 120 Liberty St., New York, N. Y. Sales Engineer—San. Eng. Equipment.

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Miss Catherine Faragher, 30 Church St., New York, N. Y. Secretary, North Public Health Bureau.

Dr. Hermann M. Biggs, Albany, N. Y.
Elsie Blanchard, M. D., 112 E. 17th St., New York, N. Y.

Mr. George R. Bedinger, American Red Cross, New York, N. Y.
Miss Mabel B. Ury, 15 Gramercy Park, New York, N. Y. Chief, Health Service Speakers Bureau, A. R. C.
Dr. M. Alice Asserson, Educ. Sec'y of New York Tuber. Assn., 10 E. 39th St., New York, N. Y.

Mr. Edward D. Rich, Lansing, Mich.
Mr. Allan T. Ricketts, 112 E. 19th St., New York, N. Y. Sanitary Engineer, part time.

Dr. D. B. Armstrong, New York, N. Y.
Mr. Lawrence Marcus, 370 Seventh Ave., New York, N. Y.

Mr. R. W. Showalter, Indianapolis, Ind.
Charles R. Tyler, 168 W. 81st St., New York, N. Y. Bacteriologist, N. Y. C. Dept. of Health.

Mr. Homer N. Calver, Washington, D. C.
Dr. Maurice T. Root, 119 Heights Court, Ithaca, N. Y. Asst. Prof. Hygiene, Cornell Univ.

Louis I. Dublin, Ph. D., New York, N. Y.
Miss Dorothy E. Wiesner, 93 Lorraine St., Mamaroneck, N. Y. Statistician, full time.

C. E. Riggs, Capt. M. C., U. S. Navy, U. S. S. Great Northern.
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James F. Rooney, M. D., 355 Madison Ave., Albany, N. Y.

Francis E. Fronzcak, M. D., Health Commissioner, Buffalo, N. Y.
Mr. Harold Balliet, Dept. of Public Works, Buffalo, N. Y.
Mr. Stephen W. Bateson, Dept. of Public Safety, Buffalo, N. Y. Chief Food Inspector, Dept. of Public Safety.

OHIO

James E. Bauman, M. D., Columbus, Ohio.
Harry H. Snively, M. D., Columbus, Ohio. Dir. of Health, State of Ohio.

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Mr. Harris Comer, South Washington Square, Philadelphia, Pa.

RHODE ISLAND

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Dennett L. Richardson, M. D., City Hospital, Providence, R. I. Supt. City Hospital.

Raymond C. Colwell, Johnston, R. I.
Mr. Harold A. Faulkner, 75 Fifth St., E., Providence, R. I. Asst. Bacteriologist.

Stephen DeM. Gage, Providence, R. I.
Miss Edith Earle, 49 Nichols St., Cranston, R. I. Asst. Chemist, R. I. State Bd. of Health.

VIRGINIA

H. E. Miller, Raleigh, N. C.
Roy P. Bishop, 1st Lt. Corps of Eng., U.S.A., Camp Humphreys, Va. Civil and Sanitary Engineering.

Mosby G. Perrow, Ph. D., Lynchburg, Va.
Mr. Lee H. Williamson, Charlottesville, Va.

WASHINGTON

Eugene R. Kelley, M. D., Boston, Mass.
Paul A. Turner, M. D., 216-19 Douglas Bldg., Seattle, Wash. Dir. of Health.

CANADA

Dr. D. A. McClenahan, Hamilton, Ont.
Mr. J. G. Cunningham, 252 Hillcrest Drive, Toronto, Ont. Full time, Prov. Board of Health.

MEXICO

Dr. Alfonso Pruneda, Mexico City, Mexico.
Dr. Francisco Castillo Najera, Mexico City, Mexico.

Dr. Diego Meza, Mexico City, Mexico.
Jose J. Rojo, D. D. S., Av. Francisco 1, Madero 69, Mexico, D. F.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 10th of each month for publication on the 20th. Mail to Boston office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in Boston, Mass. In replying give age, professional training, salary requirements, previous positions held and three or more references.

Wanted: A colored worker for visiting T. B. families. One with T. B. experience preferred. Address Dr. Albert Robin, Executive Secretary, Delaware State Tuberculosis Commission, 213 West 7th Street, Wilmington, Del.

Wanted: Sanitary engineer to take charge of Division of Sanitary Engineering of State Department of Health of Middle West state. Experience necessary, opportunity unusual. Applicant should state full particulars of education and experience, together with references. Salary for first year, $2,400. Address 474, care of this JOURNAL, New York address.

Wanted: Resident physician for hospital for communicable diseases. Must be unmarried. Salary $1200 per annum with complete maintenance. Give full particulars as to age, nationality, training and experience. Address communications to Superintendent, Sydenham Hospital, Baltimore, Md.

POSITIONS WANTED

Positions wanted announcements will henceforth be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 10th of the month.

Wanted: Qualified sanitarian, recent graduate of Harvard-Technology School of Public Health, wants position. Experience in public-health work prior to taking C. P. H. degree. District health officer, northern Maine district, one year. Division director, Main State Department of Health, two years, preceded by nineteen years' general medical and surgical practice, including four years city dispensary service, four years medical inspector of schools and six years neurologist to Central Maine General Hospital. Best of references furnished. Now open to engagement. Address 192, H. E. H., care this JOURNAL, New York address.

Wanted: Position by a competent bacteriologist in commercial, state, or city laboratory. Have had extensive experience in bacteriological and chemical laboratories. Will be available immediately and go anywhere. Prefer a permanent place with moderate salary. Married. If you need an honest, conscientious man who tries to produce class-A work and can furnish best of references, write or wire M. S. Tarpinian, care this JOURNAL, New York address.

Wanted: Dairy, milk, and food inspector, fourteen years' experience, also trained in laboratory analysis and diagnostic work, assistant sanitarian, U. S. P. H. S. (Reserve). At present director, Food Inspection Division of Health Department in Southern city of 50,000. Satisfactory references furnished. Address 196 H. J., care of this JOURNAL, New York address.

BOOKS AND REPORTS REVIEWED

Fasting and Man's Correct Diet. *R. B. Pearson, Construction Engineer. Chicago: Published by the author. 1921. Pp. 153. Price,* $1.75.

The author of this book assails the doctrines (1) that germs cause disease; (2) that drugs cure disease; and (3) that a person must eat to keep up his strength. He resents that "allopathic doctors are trying to get their members in all public offices where they can increase the sale of their devilish serums." He concludes an attack upon vaccinations of all kinds with the gentle statement that "our modern so-called 'health' officers are daily making greater efforts to 'compel' everyone to take these damnable poisons."

The author commends fasting as a panacea for the ills of the flesh, since natural hunger will come to persons who fast until their systems are clean. In experimental work upon himself he kept no record of his weight, nor did he keep an exact record of the length of his fasting periods, the longest of which he describes as continuing between twenty-five and thirty days. During this period he was extremely weak, but exposure to cold did not result in any infection, neither did mosquito or hornets' bites cause inflammation. Toothache was cured and "teeth with black cavities became white and clean." He interpreted this as indicating that "germs were losing their hold." At the end of his fast he had been cured of intestinal catarrh and previous fasts had cured catarrhal deafness.

The author believes that "the hot weather diet should comprise about 300 to 350 calories." He has not read sufficiently to realize that 300 calories is the quantity of food required during twenty-four hours by a sleeping infant weighing eleven pounds. If he had visited the Army Medical Museum in Washington he would there have realized the scourge of septicemia among the wounded during the Civil War before the days of antiseptic surgery. If he had known of the ravages of typhoid among the troops at Montauk Point after the Spanish War, in contrast with the freedom from typhoid during the World War, he would not have been misled regarding the value of typhoid vaccination. Also, he should have contemplated the relation between excellent nutrition and resistance to tuberculosis. This was exemplified during the World War by the enormous increase in tuberculosis in Germany and especially in Austria. In our own country the poor of the cities were never so well nourished, and tuberculosis greatly decreased. Ought not one, therefore, "eat to keep up his strength?"

GRAHAM LUSK.

✠

Laboratory Manual in General Microbiology. *Prepared by the Laboratory of Bacteriology and Hygiene, Michigan Agricultural College, under the direction of Ward Giltner. New York: John Wiley & Sons, 1921. Second Edition. Illustrated. Pp. 472. Price, $3.50.*

It is now approximately six years since the appearance of this *Laboratory Manual.* In spite of the war the science of microbiology has advanced sufficiently to make a new edition of the *Manual* imperative. The most important changes in the new edition are: (1) The use of Fuller's scale has been abandoned. (2) The use of the autoclave, rather than flowing steam, in sterilization, is recommended. (3) The more recent views regarding the reaction of media involving the determination of PH have been given consideration. (4) The sections dealing with soil, water and sewage bacteriology have been almost completely rewritten. (5) Important alterations have been made in the section on pathogenic bacteriology.

The *Manual* is extremely helpful to the student in conjunction with the study of Marshall's *Microbiology.* There is a liberal explanatory text to make the *Manual* much more than a mere questionnaire. The chapter dealing with hydrogen-ion concentration is written very admirably in contrast with the muddled description of this subject one often finds in other students' text-books. It is rather surprising, however, that in the chapter dealing with the preparation of media the student is still taught to adjust the reaction by the old titration method.

ARTHUR LEDERER, M. D.

PUBLIC HEALTH NOTES

Abstracts by D. Greene, M. D., James A. Tobey and Homer N. Calver.

National Health Council Lecture Course.— Complying with the request of some of its members the National Health Council on December 1st, 1921, initiated a course of lectures on the organization and services of health agencies.

The opening lecture was given by Dr. Lee K. Frankel, vice-chairman of the National Health Council and former president of the A. P. H. A. Dr. Frankel spoke on the "Romance of Public Health Work," and dwelt on the purpose of the course and its value. He sketched the history of the public-health movement in this country, and showed the enormous gains which have already been made in the various fields of health work. The increased span of life, the decreased toll from preventable disease and the promise of still further gains were brought out most effectively.

In the second lecture, Dr. Donald B. Armstrong, executive officer of the National Health Council, gave an outline of the scope of the course and the topics which would be covered in the description of the agencies.

The outline calls for a description of each organization under the following heads: 1, Organization; 2, Services; 3, Affiliations (with official and voluntary agencies); 4, Membership (number and type of each); 5, Finances; 6, Plans for immediate future (what is to be emphazised).

The lectures are given each Thursday during the months from December to April and cover 26 national organizations in the field of public health, each talk being given by an executive of the organization, as follows:

Dec. 1, The Romance of Public Health, Dr. L. K. Frankel.

Dec. 8, National Health Council, Dr. D. B. Armstrong.

Dec. 15, American Public Health Association, A. W. Hedrich.

Dec. 15, American Society for Control of Cancer, Frank J. Osborne.

Jan. 22, American Red Cross, Homer N. Calver.

Dec. 29, American Social Hygiene Association, Dr. W. F. Snow.

Jan. 5, National Child Health Council, Courtenay Dinwiddie.

Jan. 5, American Child Hygiene Association, Dr. Richard A. Bolt.

Jan. 12, Child Health Organization of America, Miss Sally Lucas Jean.

Jan. 12, National Child Labor Committee, Owen R. Lovejoy.

Jan. 19, National Organization for Public Health Nursing, Miss Elizabeth Fox.

Jan. 26, National Committee for Mental Hygiene, Dr. F. E. Williams.

Feb. 2, National Tuberculosis Association, Dr. Charles J. Hatfield.

Feb. 9, State and Provincial Health Authorities of North America, Dr. Eugene R. Kelley.

Feb. 16, American Medical Association, Dr. Wendell C. Phillips.

Feb. 23, U. S. Public Health Service, Surg. W. C. Billings.

The official agencies and the various foundations will be discussed from March 2 to March 16 and a number of voluntary agencies not Council members will be taken up on March 23 to April 6. The schedule follows:

March 2, Children's Bureau, Miss Grace Abbott.

March 2, Veteran's Bureau, Col. Chas. R. Forbes.

March 9, International Health Board of the Rockefeller Foundation, Dr. Wickliffe Rose.

March 9, Carnegie Corporation, (speaker to be announced).

March 16, Russell Sage Foundation, E. G. Routzahn.

March 16, Milbank Memorial Fund, J. A. Kingsbury.

March 23, National Committee for the Prevention of Blindness, E. M. Van Cleve.

March 23, League for Nursing Education and American Nurses Association, Miss Clara D. Noyes.

March 30, American Association of Physicians and Surgeons in Industry, Dr. C. E. Ford.

March 30, American Conference on Hospital Service, American Association of Hos-

pital Social Workers, American Hospital Association, Dr. Michael M. Davis.

April 6, Y. M. C. A.—Y. W. C. A., Dr. Anna L. Brown.

April 6, Metropolitan Life Ins. Co., Dr. A. Fleisher.

The course closes on April 13 with summaries by Dr. Armstrong, Dr. Frankel and Dr. Snow.

✣

Present Status of Cancer Mortality.—The latest picture of cancer mortality in the United States is presented in a letter recently received from Dr. Frederick L. Hoffman, which gives the estimates for 1920 by race and sex, organs and parts, as follows:

The total approximate mortality was 90,000, of which 37,116 were deaths of males, and 52,884 were deaths of females. Of this number 85,883 were deaths of white persons, while 4,117 were of colored.

Under organs and parts, cancer of the buccal cavity caused approximately 3,339 deaths of which 2,775 were males and 564 were females.

Cancer of the stomach and liver caused 34,293 deaths, of which 17,317 were deaths of males and 16,976 were of females.

Cancer of the peritoneum, intestines and rectum caused 11,980 deaths, of which 5,141 were males and 6,839 were females.

Cancer of the female generative organs caused 13,671 deaths, of which 12,401 were deaths of white women, and 1,270 were deaths of colored women.

Cancer of the breast caused 8,369 deaths, of which 132 were males, and 8,237 were females.

Cancer of the skin caused 3,169 deaths, of which 2,045 were males and 1,115 were females.

Cancer of other organs and parts caused 15,188 deaths, of which 9,706 were males and 5,483 were females.

The question arises as to what hope there is for a decrease in mortality from this disease, and a chart recently prepared by Dr. Hoffman as statistician for the Prudential Insurance Company of America shows that since 1916 there has been no increase in the cancer mortality rate, but rather a slight, though significant, decrease. Annual fluctuations of a minor nature are noted, but in general the curve has been arrested and is now headed downward. This is the most encouraging indication noted since the organization of the Cancer Society and leads us to hope that by more intensive and extensive work throughout the country, a still further decline in the mortality curve may be effected.—*Bulletin, American Society for Control of Cancer,* Sept., 1921. (*D. G.*)

✣

Experimental Inoculation with Diphtheria Bacilli.—The authors summarize the results of their extensive investigations as follows: "(1) The carrier state was easily produced in human beings by inoculation of the throat with a virulent diphtheria bacilli. (2) When thus produced the carrier state lasted for a long time, two of the carriers still harboring avirulent diphtheria bacilli after fifteen months. (3) The previous administration of diphtheria antitoxin subcutaneously did not prevent the lodgment and growth of the organisms. (4) Inoculation of avirulent diphtheria bacilli into the throats of human beings did not produce: (*a*) clinical diphtheria; (*b*) any subjective symptoms; (*c*) any objective change in the appearance of the throat. (5) The results of the guinea-pig test for virulence were confirmed when thus tested with human beings. (6) No cases of clinical diphtheria developed among the associates of these artificially produced 'healthy carriers' of avirulent diphtheria bacilli. (7) When isolated in pure culture after prolonged sojourn in the human throat the bacilli were not altered in morphology or in their staining or cultural characteristics. (8) The bacilli showed no tendency to become virulent as a result of this type of animal passage, either in the carriers who had received diphtheria antitoxin or in those who had not. (9) Spraying the nose with gentian violet in a strength which could be tolerated seemed to be without effect in eradicating avirulent diphtheria bacilli." The following are the conclusions of the investigators: "(1) Avirulent diphtheria bacilli retain their characteristics despite long residence in the human throat or transfer from one human being to another. (2) Avirulent diphtheria bacilli are devoid of pathogenic importance for man. (3) The carrier of avirulent diphtheria does not constitute a menace to the health of the community."—Moss, Guthrie and Marshall, *Johns Hopkins Hosp. Bulletin,* xxxii, 37, Abstr., *Amer. Jour. Med. Sci.,* July, 1921, 136. (*D. G.*)

A Portable Disinfector.—The author describes a portable disinfector particularly useful in rural districts which provides efficient disinfection with increased mobility and at a low cost. The apparatus is so light and readily packed that a light model can readily be carried on a pedal bicycle, while a heavier model can be conveyed on the back carrier of a motor cycle. It is stated to be capable of effectively disinfecting 1½ tons of textiles in six hours; 120 single blankets in an hour, and 150 pounds of underclothing in 15 minutes. This active disinfecting capacity is produced at a very small expenditure of oil from an oil stove. The capital cost of the whole apparatus is stated to be very small in comparison with that of the most modest of the ordinary steam disinfectors now in general use.—F. E. Wynne, *Medical Officer,* Oct. 8, 1921, 157. (*D. G.*)

✣

Personal Cleanliness Scheme for School Children.—Dr. E. M. Wyche, in his latest annual report to the city of Nottingham, points out that it is possible to secure the necessary improvement in cases of uncleanliness through the medium of a printed notice, friendly in tone, helpful in suggestion and avoiding any reference to the authority's legal powers. By means of a series of such notices, commencing with one of friendly type, following up with others of graduated severity, and terminating with the final statutory notice under the Children Act, Dr. Wyche has proved that it is possible to combat uncleanliness in an area with the minimum of friction between the visitors and the parents. His series of graduated warning notices is as follows:

First Notice.—I feel sure that you will be distressed to learn that the hair of your child (named below) contains nits, and I would like you clearly to realize that I share your anxiety to free the child of this objectionable condition.

I advise you to plait or tie back the hair and treat it daily in the manner described on the back of this form. You may rest assured that regular and careful treatment according to these directions will speedily cleanse the hair.

Second Notice.—Your attention is again drawn to the fact that the hair of your child (named below) contains nits. It is my duty to require you to cleanse the child's hair forthwith.

Nits are the eggs of lice, and so long as they are present the hair is in danger of becoming verminous.

The child's hair must be plaited or tied back while in school, and you are advised to do this also at any time when he or she is likely to mix with other children.

Regular and careful treatment according to the directions on the back of this form will speedily cleanse the hair.

Third Notice.—Important.—Sec. 122 of the Children Act, 1908.

With reference to your child,
I have once more to inform you that on her hair still contained
If you fail to cleanse her to my satisfaction within seven days from the date of this notice it will be my painful duty to report this case for proceedings under Section 122 of the Children Act, 1908.

Statutory Notice under Children Act, 1908.

CHILDREN ACT, 1908. CLEANSING OF CHILDREN

Statutory Notice to the Parents or Guardians of .....

Date.....

I am directed by the Education Committee to inform you that the above-named child's head body clothing are unclean within the meaning of Sec. 122 of the Children Act, 1908.

On the back of this notice you will find directions for properly cleansing h

I hereby give you notice that you must properly cleanse h person and clothing within three days after receiving this notice.

If you fail to do so, your child will forthwith be cleansed by the Education Committee's officers.

Dr. Wyche points out that the success of a cleanliness scheme depends very largely upon the following essential provisions:

(*a*) The regular and frequent inspection (by nurses or trained uncertificated assistants—preferably the latter) of all children in the schools;

(*b*) The rigid following up of each case found to be below the accepted standard of cleanliness, until the child is either clean as the result of the parents' efforts or has been cleansed by the committee's officers;

(*c*) Active coöperation by the health de-

partment in the storing of clothing, cleansing of home premises, etc.;

(*d*) Complete control of visitation by the school medical officer in such a manner that at any moment he may have before him the full and up-to-date cleanliness record of any child within his area; and

(*e*) A central school career cleanliness record for each child.—*Medical Officer,* Oct. 29, 1921, 190. (*D. G.*)

✣

Claims for Leprosy Cure Premature.—The U. S. Public Health Service has felt it necessary to prevent the too optimistic and extravagant claims recently appearing in the newspapers in regard to the curative effects of chaulmoogra oil derivatives on leprosy. While the use of the oil and of its derivatives has resulted in a considerable number of apparent cures, it is as yet too soon to tell whether these will be permanent.

The ethyl esters of chaulmoogra oil, the use of which has largely supplanted the oil itself, constitute a most valuable agent in the treatment of leprosy. In treating young persons and those in the early stages of the disease, the improvement has been rapid and striking; in older persons and older cases it is less so. Of the cases paroled from the leprosy stations in the Hawaiian Islands so far, about eight per cent have relapsed and returned for treatment. This was to be expected; and on the whole the results have been so favorable as to make treatment of the disease hopeful. But only time can tell.

✣

National Health Council Report on Woman's Bureau.—The fourth of the National Health Council reports on the health activities of the United States Government was issued on November 1, 1921. This was a report on the Women's Bureau of the United States Department of Labor. It outlines the history and development of this bureau and summarizes its scope, organization and activities. The other reports of the Council were as follows: The Division of Vital Statistics, United States Bureau of the Census (June 1, 1921); Health Activities of the United States Government (with chart) (July 1, 1921); and the Children's Bureau of the United States Department of Labor, August 1, 1921. The last-named report should be of great interest to health workers at this time on account of the increased importance accorded to the Children's Bureau by the passage of the Sheppard-Towner Maternity and Infancy Bill, which became a law on November 23, 1921.

✣

Malaria and the Lost Cities of Ceylon.—The physical degeneracy of the descendants of the Northern Indians who invaded Ceylon in the sixth century, B. C., is attributed to malaria by Lucas Nicholls, a writer in the *Indian Medical Gazette,* April, 1921. The author illustrates his paper by beautiful photographs of sculptured rocks which reveal the high state of mental culture and physical vigor which characterized these people in ancient times. He believes from the climatological evidence that malaria was a new disease introduced into the island by the Indian invaders. It attained great virulence later by the aid of vast irrigation works. The author seems to think that now nothing can be done to cope with the disease but to let the forces of nature evolve a solution of the problem.—Cited in *Public Health Engineering Abstracts,* Sept. 24, 1921. From *Tropical Diseases Bulletin,* August 15, 1921.—(*J. A. T.*)

✣

Government Need for Workers in Rehabilitation.—The United States Civil Service Commission states that there is urgent need for reconstruction assistants and aides in physiotherapy and occupational therapy, as trained nurses, and physicians, to serve in hospitals and other establishments of the United States Public Health Service and the Veterans' Bureau, in the care and rehabilitation of men injured in the World War. The Commission has announced that it will receive applications for these positions until further notice. The applicants will not be given written scholastic tests, but will be rated upon their education, training, experience, and physical ability.

The Commission points out the importance of filling these positions promptly with the best qualified workers available.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the Local Board of Civil Service Examiners at the post office or custom house in any city.

✣

Examinations of the National Board of Medical Examiners.—The first examination

of the National Board of Medical Examiners under the new plan in Parts I and II will be held as follows: Part I, February 15, 16 and 17 (1922), inclusive. Part II, February 20 and 21 (1922), inclusive. Applications for examination should be received no later than January 15, 1922. Application blanks and circulars of information may be had by writing to the secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia, Pa.

✣

Red Cross Increasing Relief for Soviet Russia.—Medical supplies, one of the greatest needs in the famine stricken and disease-ravaged provinces of Soviet Russia, which are being supplied by the American Red Cross and distributed by the American Relief Administration, are being shipped in increasing quantities from the European stocks of the Red Cross and from the United States. By the end of December, 1921, Red Cross supplies valued at nearly $2,000,000 were sent into Soviet Russia to alleviate the suffering of tens of thousands.

Advices received at Red Cross headquarters in Paris from Dr. Henry Beeuwkes, directing the distribution of these Red Cross medical supplies in Russia, points out that typhus is prevalent in its most severe form and with the coming of winter will result in widespread and severe epidemics.

Malaria has been severe and is still prevalent in chronic form, Dr. Beeuwkes' report continues. He also points out that typhoid fever, diseases of the skin and eyes, and diseases directly traceable to the malnutrition general throughout the provinces are found in many instances. Constitutional diseases are severe and widespread.

"Drugs and hospital supplies are extremely scarce and satisfactory medical and surgical work is in consequence impossible. A leading surgeon in Simbirsk tells me that they draw thread from clothing to obtain suture material. Hospitals are congested and have long waiting lists," says Dr. Beeuwkes' report.

Outlining the medical work to be undertaken and the method of supply distribution, Dr. Beeuwkes says: "Present plans contemplate: the supply of existing hospitals and clinics with drugs and hospital supplies essential to their operation; the organization of clinics at food distribution centers in areas without medical facilities; inauguration of measures to prevent and combat diseases in areas in which relief is undertaken. In order to combat typhus, the Red Cross has in view the establishment of a large number of bath and disinfecting units to be installed and controlled by American personnel and operated by Russians. Installations will be simple and the cost low in comparison with the benefits they will render in areas badly infested and without bathing facilities."

✣

Mexico Holds a Health Exposition.—A children's week expositon celebrated in Mexico City recently was attended by more than 10,000 people. The principal departments visited were those where milk was hygienically sterilized, analyzed, and prepared for infant feeding. Many interesting exhibits were installed. Some of the subjects treated were prenatal care; milk; infant mortality; children's diseases; care of children as to daily program, feeding, clothing, teeth, and eyes; housing; and the rural child. Lectures on pertinent subjects were given both morning and afternoon.—*Pan-American Bulletin,* November, 1921. (*J. A. T.*)

✣

Public Health in Ireland.—A writer in the *Survey Graphic* of November 26, 1921, which is devoted entirely to Ireland, tells about public health in that country. He states that as regards preventive medicine, Ireland lags behind most civilized countries. The advance of public health has not kept pace with that of England. Few, if any, countries, however, have a more complete system of free medical treatment for the poor than has Ireland. For seventy years, since the passing of the Medical Charities Act, the poor may secure free medical attendance and medicine, and hospital treatment is also available. Nearly one half of the population is eligible for this free treatment. During recent years, sanatoria for the treatment of tuberculosis have been established and there are also asylums for the detention and care of lunatics and the feeble-minded. Practically every district in Ireland is provided with a trained maternity nurse. There are about two hundred visiting nurses in the country. A number of schemes for the diagnosis and treatment of venereal diseases are in operation.

The writer devotes some space to mak-

ing recommendations for improvements. He would centralize the control of public health, increase salaries of medical officers and establish a more efficient medical research.—New Health for Old, by Sir Edward Coey Bigger, M. D., *Survey,* November 26, 1921. (*J. A. T.*)

✣

Traveling Clinic in Slovakia.—A feature of the child welfare unit, which the Lady Muriel Paget Mission in Czecho-Slovakia is operating in conjunction with the League of Red Cross Societies, is the automobile clinic which travels through the country. This clinic, or traveling dispensary, began its work last May and in three months covered over 3,000 miles, serving eleven villages, where about 2,000 children have been treated.

The staff consists of one Czecho-Slovak and two English nurses, a Slovak interpreter and the driver. The clinic is held by the local doctor, or, in cases where there is none, by the doctor from the nearest village.

Upon arriving at a village where the clinic is to be held, a schoolroom is transformed as quickly as possible into a waiting and weighing room and a doctor's room and dispensary, by means of the screens, tables, medicine trays, etc., carried on board the lorry. The mothers are ranged sitting at long tables, with baskets hanging from the tables in front of them, and soon their babies, wrapped up like little mummies in their mattresses and many ribbons. are slowly unswathed on the table, the clothes going into the respective baskets and so kept apart. The babies enjoy the release, for they have frequently been carried for fifteen miles on their mothers' backs and have not been unwrapped for six hours. After being weighed, the mothers carry them into the doctor's room with their weight charts, and the doctor prescribes for them, and has a talk with each mother. They are then taken back to undergo the same process of mummification again, and their long pilgrimage over the hills starts once more.

The traveling clinic accomplishes a twofold task. It undertakes immediate relief work, which is of inestimable value, as it frequently goes to villages which are many miles away from the nearest doctor or chemist and where the inhabitants, when seriously ill, generally die for want of proper care. But even more important is the work of instruction carried on by this dispensary on wheels. Within three months more than 1,000 mothers have been taught how to wash and feed their infants and how to nurse them when sick. It is difficult to over-estimate the value of this instruction in a country where ideas on these subjects are less than rudimentary.—*Bull. League of R. C. Societies,* Sept., 1921.

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Wanted: A Unified Command.—Those who have witnessed the attempts in the last few years in this country to create a national department of public health which would conduct all federal health activities will be interested to note an expression of sentiment on a similar matter in England. The *Medical Officer,* speaking of the local situation, says, "Public-health committees, Poor Law guardians, general practitioners, hospitals, dispensaries and voluntary organizations of every type are enlisted in the same task. With so gigantic an effort along the whole battle front, it behooves us from time to time to take stock of our position, to examine the disposition of our forces and to determine whether at any point we can husband our resources."

This periodical apparently does not entirely favor for England the plan that is at present so popular in the United States, for it says, "We can too easily beguile ourselves and darken counsel by the use of those overworked shibboleths 'correlation' and 'coöperation.' In the late war there was doubtless correlation and coöperation between the different commands in France, but victory did not come until there was unity of command. It will be so with the health of the school child. The preservation of health, whether in infancy, childhood, adolescence or adult life is a unity; it cannot be divided by any artificial line of separation into component parts."

The English stand on the relation of school medical inspection to the health department is equally positive. "The time is now ripe for a reconsideration of the present position. The work of the school medical service is suffering from its disassociation from the general health service of the country, both centrally and locally. In the interests of efficiency and economy alike, there should be but one central authority and one

local health committee, dealing with all the phases of preventive medicine. In the war against disease there may be separate general staffs, but for victory there must be unity of command." It is significant that the trend of thought in the two countries is so nearly parallel.—*Medical Officer,* Nov. 12, 1921.

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LEGISLATION—FEDERAL

PROGRESS ON MATTERS PREVIOUSLY CONSIDERED

(From bi-weekly reports of the National Health Council, November 2-23, 1921)

S. 1039. Bill for Promotion of Welfare of Maternity and Infancy Becomes a Law.—The Sheppard-Towner bill for the promotion of the welfare of maternity and infancy, which passed the Senate on July 22, 1921, passed the House of Representatives on November 19, 1921, by a vote of 279 to 39. The Senate concurred in the House amendments on November 21. Ever since its adoption by the Senate in July, this measure has been before the House Committee on Interstate and Foreign Commerce, where extensive hearings were held. It was favorably reported to the House on November 14, 1921, with several amendments. The bill was signed by the President on November 23, 1921.

This law may be summarized as follows:

(a) Besides an appropriation of $50,000 for administrative purposes, it gives $10,000 outright to each state of the union to be used for the protection of maternity and infancy for the fiscal year ending June 30, 1922. $5,000 is to be paid each state annually thereafter for five years.

(b) Subject to qualifications $1,000,000 is to be given to the states for the fiscal year ending July 30, 1922, and $1,000,000 annually thereafter, for five years. Deducting administrative expenses and the sum given outright, $710,000 remains as the amount allotted to states on a population basis. This proportion must be matched dollar for dollar by each state in order to obtain the grant.

(c) A board of maternity and infant hygiene is created, consisting of the Chief of the Children's Bureau of the Department of Labor, the Surgeon General of the United States Public Health Service and the United States Commissioner of Education.

(d) The Children's Bureau is charged with the administration of the act and its chief is named as executive officer, empowered to promote an efficient administration of the act. This bureau makes the apportionments to the various states. The bureau of child hygiene in the state health department administers the act in the state.

(e) State agencies must make reports concerning their plans and operations to the Children's Bureau. Authority is given to the Bureau to withhold certificates of payment of federal funds if states do not comply with the conditions of this law.

(f) Officials and agents of the several states are restricted from entering homes or taking charge of children over the objection of their parents.

The principal changes made in this bill over the one originally introduced (see Statements No. 2, p. 10, A. P. H. J., July, and No. 14, p. 12) are as follows:

The title is changed from "Protection of Maternity and Infancy" to "Promotion of the Welfare of Maternity and Infancy." The appropriation is now limited to five years and a definite amount of $10,000 for the first year and $5,000 annually thereafter is given outright to each state. A Board of Maternity and Infant Hygiene with definite duties is created instead of an advisory committee. The amount for administrative expenses for the Children's Bureau is increased from 3 to 5 per cent of the appropriation. Appeal to the President if certification by the board is withheld is provided for.

Interesting discussion of this bill will be found in the Congressional Records of November 18 and 19.

H. R. 7294. Final Enactment of Willis-Campbell Anti-Beer Law. Adoption of the conference report on this measure, forbidding the manufacture and sale of medicinal beer, by the Senate on November 18, 1921, by a vote of 56 to 22, and its signature by the President on November 23, 1921, brought its enactment into a law. Previous to signing the bill, President Harding referred it for report to the treasury department, which had recently issued lengthy regulations for the distribution of beer on a physician's prescription (see Statement No. 14, p. 3, A. P. H. J., December). The Secretary of the Treasury promptly gave

his endorsement to the proposed act. A summary of the provisions of the law as finally adopted in both houses of Congress follows:

(a) The bill prohibits the prescribing of beer or malt liquors for medicinal purposes.

(b) Not more than one-fourth of a gallon of vinous liquor, or vinous or spiritous liquor separately or in the aggregate containing more than one-half of a pint of alcohol may be prescribed in ten days.

(c) Physicians are limited to 100 prescriptions in ninety days unless extraordinary reason is presented.

(d) The commissioner may cancel or require change of permits to manufacture patent medicines and preparations used as a beverage, even if they are unfit for beverage use, or require the formula for making extracts to be changed, or may cancel the permit, if it appears to the commissioner that the sale or use of such articles is substantially increased by reason of their use for beverage purposes.

(e) Importation of spiritous or vinous liquor is prohibited until the amount on hand shall not be sufficient to supply the current need for non-beverage purposes.

(f) Spiritous liquors exported in the original packages may be reimported in such packages for redeposit in the distillery warehouse from which originally removed.

(g) The courts of Hawaii and the Virgin Islands are given jurisdiction to enforce the National Prohibition Act.

(h) Regulations to carry this act into effect are authorized.

(i) Revenue laws relating to the manufacture, taxation of and traffic in liquor shall remain in effect when not in conflict with the national prohibition act, and the prohibition taxes and tax penalties provided in the national prohibition act shall be collected in the same manner as other taxes on liquor.

(j) Taxes on liquor stolen or destroyed shall not be collected from the owner if the loss or theft did not occur as a result of his negligence, connivance, collusion or fraud on the part of the owner or person legally accountable for the same.

(k) Private residences may not be searched without a search warrant. Officers who without probable cause enter and maliciously search any place without a search warrant are penalized. Persons who impersonate officers enforcing the prohibition act are heavily penalized.

S. 2668. $16,000,000 Appropriation for New Hospitals Presented to Senate. Introduced by Senator Ashurst on October 20, 1921. Referred to the Committee on Appropriations. This bill is a duplicate of the measure introduced in the House of Representatives by Mr. Langley October 21, 1921, (H. R. 8791) providing for an appropriation of $16,000,000 for the construction of hospital facilities for veterans. The bill stipulates that $500,000 shall be used in the extension of U. S. Public Health Service Hospital Number 32, in the city of Washington. The purpose of the introduction of the bill in the Senate is to facilitate its passage through both houses. (See Statement No. 14).

S. 2764. To Promote Efficiency in the U. S. Public Health Service. Introduced by Senator Watson of Indiana, November 22, 1921. Referred to the Committee on Finance. This proposed legislation is similar to the measure introduced in the House (H. R. 8566) by Mr. Dyer on October 10, 1921. (See Statement No. 13, p. 5, A. P. H. J., December). It provides for the commissioning in the regular service of five hundred and fifty officers of the Reserve Corps of the United States Public Health Service. A system of promotions without any change in the present pay is established. A provision fixes the term of the Surgeon General at four years and limits his selection by the President from the commissioned personnel of the service. Seven professors of the hygienic laboratory are authorized and the organization of a corps of nurses, of dietitians and reconstruction aids is inaugurated. A complete outline of the officers of each corps with the pay for each is among the important features of the measure.

H. R. 7883. Mental Clinics for D. C. Juvenile Court. Adverse Action in House. This bill, having been favorably reported on July 28 (see Statement No. 10, p. 9, A. P. H. J., October), was brought up in the House on November 14. The bill provided for mental and physical examination and study of persons brought before the Juvenile Court of the District of Columbia. It was discussed at some length. Finally, on motion of Mr. Bankhead, the bill was re-

ported back to the House with the recommendation that the enacting clause be stricken out. The effect of this was to kill the measure.

NEW LEGISLATION

Coördination of Federal Hospitals. Bureau of the Budget, Treasury Department, Circulars Nos. 44 and 45. On November 1, 1921, Director Charles G. Dawes of the Bureau of the Budget, issued an order for the purpose of coördinating the separate hospitalization activities of the government. The hospitals of the following bureaus would be affected:

Medical Department of the Army, Bureau of Medicine and Surgery of the Navy, Public Health Service, St. Elizabeth's Hospital, National Home for Disabled Volunteer Soldiers, Office of Commissioner of Indian Affairs, U. S. Veterans' Bureau.

On November 3, Mr. Dawes appointed Brigadier General C. E. Sawyer as Chief Coördinator. General Sawyer will also be president of a federal board of hospitalization, the members of which are the heads of the bureaus listed above.

The duties of this board are to:

(a) Consider all questions relative to the coördination of hospitalization of the departments represented.

(b) Standardize requirements, to expedite the interdepartment use of existing government facilities, to eliminate duplication in the purchase of supplies and the erection of buildings.

(c) Formulate plans designed to knit together in proper coördination the activities of the several departments and establishments, with a view to safeguarding the interests of the government and to increasing the usefulness and efficiency of the several organizations, and to report to the President thereon.

S. J. Resolution 130. Erection of Monument to General Gorgas in the District of Columbia. Introduced by Senator Heflin of Alabama, October 20, 1921. Referred to Committee on Library. This measure appropriates $50,000 for the erection of a suitable monument in the city of Washington to Major General William Crawford Gorgas, in memory of the services he rendered to humanity.

H. R. 9046. Limiting Amount of Water to be Withdrawn from Lake Michigan for the Sanitary District of Chicago. Introduced by Mr. Michaelson, November 9, 1921. Referred to the Committee on Rivers and Harbors. In order to prevent the pollution of the waters at the southern end of Lake Michigan and to divert the sewage and drainage from Lake Michigan, this measure limits the amount of water that can be drawn by the Sanitary District of Chicago, to not more than an average of ten thousand cubic feet of water per second for each calendar year.

For compensation for any lowering of water in the Great Lakes due to such withdrawal, the Sanitary District must pay the United States the reasonable cost of maintaining the water levels.

To care for any excess of population over 3,000,000 the Sanitary District must install sewage purification works.

District of Columbia Bills. H. R. 8955. Regulation of Sale of Milk and Cream in the District of Columbia. Introduced by Mr. Focht, November 1, 1921. Referred to the Committee on the District of Columbia. The bill prohibits the sale of raw milk and cream in the District unless it is certified or has been properly pasteurized under the supervision of the health office of the District by being held at a temperature of not less than 142 degrees Fahrenheit nor greater than 148 degrees, Fahrenheit. There is a penalty attached for violation of the proposed law.

S. 2702. Support and Maintenance of Illegitimate Children in District of Columbia. Introduced by Senator Ball November 9, 1921. Referred to the Committe on the District of Columbia. This bill confers upon the Juvenile Court of the District of Columbia and the Supreme Court of the District the power to compel fathers to support illegitimate children. A heavy penalty is provided in cases of violation of the act. The courts are given the right to suspend sentences in case delinquents repent and make proper payments for support and maintenance of their illegitimate children.

H. R. 9237. First Deficiency Appropriation for 1922. Introduced by Representative Madden, November 21, 1921. Favorably reported to the House by the Committee on Appropriations, Nov. 21, 1921. Passed the House of Representatives November 22, 1921, with a few minor amendments. This

measure contains several items of interest to public health. The main one is an appropriation of $25,000,000 to the U. S. Veterans' Bureau for medical and hospital services. A sum of $40,000,000 is also included for vocational training. A summary of the appropriations dealing with health matters follows:

(a) For continuing construction of Gallinger Municipal Hospital in Washington, $150,000.

(b) For vocational training in U. S. Veterans' Bureau, $40,000,000; for medical and hospital service, U. S. Veterans' Bureau, $25,000,000.

(c) For U. S. Public Health Service to be used for medical, surgical and hospital service; for quarantine service; for freight and transportation, $635,000.

(d) For prevention of epidemics, $1,000.

(e) For support of Southern Branch of National Home of Disabled Soldiers at Hampton, Va., $106,500.

After its passage by the House, the measure went to the Senate to be taken up there at the December session.

LEGISLATION—STATE

Ohio.—By a unanimous decision on December 6, 1921, the Ohio State Supreme Court upheld the constitutionality of the Hughes Health Law (108 Ohio Laws, part 1, p. 236; Section 1261, et seq., General Code), and the Griswold Law (106 Ohio Laws, part 2, p. 1085) which amended it.

Two cases in mandamus—one by the village of Cuyahoga Heights and one by the city of West Park, both in Cuyahoga County—were heard together by the court. Both sought to compel the county auditor to issue his warrant upon the county treasurer for certain amounts of money held by him for the use of the Cuyahoga County general health district.

All questions of fact or technicalities were waived by agreement of counsel on both sides and the constitutional questions were before the court on their merits.

The Hughes law was approved May 9, 1919, and the Griswold Law was approved December 18, 1919, and together they abolished the system of city, village and township boards of health of which there were approximately 2,150. This system was replaced by two types of health districts, a municipal health district in cities of 5,000 population or more, and a general health district in each county in the state exclusive of cities in the county, making a total of 182 health districts. Under the old system there were but five or six full time health commissioners in the entire state. Under the new system there are at present 44 full time health commissioners.

The decision is one of the most important health decisions ever handed down by the Ohio Supreme Court. Speaking through Judge Johnson, the Court said:

"The General Assembly, in the exercise of the legislative power conferred by the constitution, has authority to enact general laws prescribing health, sanitary and similar regulations effective throughout the state; and to provide such reasonable classifications therein as may be deemed necessary to accomplish the object sought.

"The peace, morals, health and safety of the people are a matter of concern to the state, and when the state has enacted general laws providing sanitary and similar regulations effective throughout the state, the different subdivisions of the government may be required to contribute to the carrying out of the legislation."

The Ohio Public Health Association made it possible financially for the State Department of Health to employ special counsel to test the constitutionality of the law.

INDEX

The following compilation is more than an index; it is a history of all bills relating to public health and allied matters in Congress from April 11 to Nov. 16, 1921. It is arranged in three parts: (1) Senate Bills and Resolutions; (2) House Bills and Resolutions; (3) Subject Index. Under (1) and (2) the bills are given in numerical order. The data under each comprises: the number of the bill (as "S. 1607"); the subject of the bill (as "Department of Public Welfare"); name of member introducing it (as "Mr. Kenyon"); date introduced (as "May 5"), all dates being 1921; committee to which it was referred, (as "Education and Labor"); reference to Statement in which the bill is described (as "No. 3"); reference to Statements in which progress of the bill is given (as "Progress, No. 4, p. 2," etc.); issue of the AMERICAN JOURNAL OF PUBLIC HEALTH in

which statement appeared (as "A. P. H. J., July").

The Subject Index is arranged alphabetically. If a person is interested, for instance, in maternity and infancy, he turns to this subject under "M" and finds S. 1039 and H. R. 2366 cited. Then turning to S. 1039 in the proper chronological order under the Senate Bills, he finds that this bill was introduced by Mr. Sheppard on April 21 and was passed on July 22, noting its progress between those dates. If the data ends with the name of the committee to which the bill was referred, this means that no further action has been taken on it. All data has been checked against the index of the *Congressional Record*.

This compilation is believed to be the first attempt in the history of public health to collect complete information on the national health legislation of a session of Congress.

1. *Senate Bills*

S. 132. Sale of St. Louis Marine Hospital. Cited No. 2, p. 20. (A. P. H. J., July.)

S. 206. Prohibition of Exportation of Opium. Mr. Jones. April 12. Finance. No. 2, p. 14. (A. P. H. J., July.)

S. 321. Investigations of Fires and Dust Explosions in Industrial Plants. Cited No. 2, p. 20. (A. P. H. J., July.)

S. 408. Department of Social Welfare. Mr. Kenyon. April 12. Education and Labor. No. 2, p. 7. (See also S. 1607). (A. P. H. J., July.)

S. 525. Sanitary Reserve Corps in U. S. Public Health Service. Mr. Owen. April 12. Military Affairs. No. 2, p. 13. (A. P. H. J., July.)

S. 526. Department of Health. Mr. Owen. April 12. Appropriations. No. 2, p. 8. (A. P. H. J., July.)

S. 624. Regulation of Chiropractic, D. C. Mr. Fletcher. April 13. District of Columbia. No. 2, p. 18. (A. P. H. J., July.)

S. 749. Regulation of Osteopathy, D. C. Mr. Capper. April 13. District of Columbia. No. 2, p. 18. (A. P. H. J., July.)

S. 758. Prohibiting Experiments on Living Dogs, D. C. and Territories. Mr. Myers. April 15. Judiciary. No. 2, p. 19. Hearings, June 29. No. 8, p. 8. (A. P. H. J., Sept.)

S. 802. Incorporation of American Society for Control of Cancer. Mr. Wadsworth. April 13. Judiciary. No. 2, p. 16. (A. P. H. J., July.)

S. 810. Regulation of Practice of Medicine, D. C. Mr. Cummins. April 13. District of Columbia. No. 2, p. 17. (See also S. 2283.) (A. P. H. J., July.)

S. 812. Regarding Cold Storage Foods. Cited No. 2, p. 21. (A. P. H. J., July.)

S. 1039. Protection of Maternity and Infancy. Mr. Sheppard. April 21. Education and Labor. No. 2, p. 10. Hearings, May 5, No. 4, p. 3. (A. P. H. J., July.)
Amendment, No. 4, p. 6. Reported May 20, No. 5, p. 6. Progress, No. 7, p. 4; No. 8, p. 2-3. Passed July 22, No. 10, p. 3. (A. P. H. J., July, Aug., Sept., Oct.)

S. 1084. National Budget. Mr. McCormick. April 25. Expenditures in Executive Departments. No. 8, p. 9. (A. P. H. J., Sept.)

S. 1109. Compensation for Injured Government Employees. Cited No. 4, p. 4. (A. P. H. J., July.)

S. 1198. New Hospital at St. Louis. Cited No. 4, p. 9. (A. P. H. J., July.)

S. 1497. Increasing Compensation for Totally Disabled Persons. Cited No. 4, p. 10. (A. P. H. J., July.)

S. 1565. Retirement of all Disabled Army Officers on Equal Terms. Cited No. 9, p. 9. (A. P. H. J., Sept.)

S. 1588. Prevention of Venereal Diseases, D. C. Hearings, Oct. 13 and 20. No. 13, p. 2. (A. P. H. J., December.)

S. 1591. Incorporation, D. C. Medical Society. Report, Nov. 4. No. 15, p. 8.

S. 1607. Department of Public Welfare. Mr. Kenyon. May 5. Education and Labor. No. 3. Progress, No. 4, p. 2. Hearings, No. 5, p. 2. Status, No. 10, p. 8. (A. P. H. J., July, Oct.)

S. 1616. Repression of Prostitution, D. C. Hearings, Oct. 13 and 20. No. 13, p. 2. (A. P. H. J., December.)

S. 1718. Tobacco for Ex-service Hospital Patients. Cited No. 11, p. 5.

S. 1839. Department of Public Welfare. Mr. McCormick. May 18. Education and Labor. No. 5, p. 9. (A. P. H. J., July.)

S. 1882. Honest Merchandise Act. Mr. Lodge. May 20, Interstate Commerce. No. 6, p. 6. (A. P. H. J., Aug.)

S. 1887. Extending Food and Drugs Act. Mr. Calder. May 20. Interstate Commerce. No. 6, p. 7. (A. P. H. J., Aug.)

S. 1890. Division of Construction and Housing in Bureau of Standards. Cited No. 6, p. 8. (A. P. H. J., Aug.)

S. 1896. Department of Public Works. Cited No. 6, p. 8. (A. P. H. J., Aug.)

S. 1911. Extending Government Employees Compensation Law. Cited No. 6, p. 8. (A. P. H. J., Aug.)

S. 1944. Incorporating Light Houses for the Blind. Mr. Warren. June 2. Judiciary. No. 6, p. 7; No. 7, p. 8. (A. P. H. J., Aug.)

S. 1971. Care for Government Employees Stricken with Tuberculosis. Mr. Sheppard. June 6. Civil Service. No. 7, p. 10. (A. P. H. J., Aug.)

S. 2040. Child Labor, etc., D. C. Mr. Capper. June 10. District of Columbia. No. 8, p. 8. (A. P. H. J., Sept.)

S. 2083. Embalming and Undertaking, D. C. Mr. Ball. June 15. District of Columbia. No. 7, p. 11. (A. P. H. J., Aug.)

S. 2116. Supplemental to National Prohibition. Mr. Willis. June 20. Judiciary. No. 8, p. 4. Progress, No. 9, p. 4. Reported July 6, No. 10, p. 8. Progress, No. 11, p. 2. (A. P. H. J., Sept., Oct.)

S. 2205)

S. 2206)

S. 2209) Protection of Child Welfare, D. C. Mr. Ball. July 5. District of Columbia. No. 8, p. 12. (A. P. H. J., Sept.)

S. 2208. Examination of Delinquents Before D. C. Juvenile Court. Mr. Ball. July 5. District of Columbia. No. 8, p. 12. Hearings July 13, No. 9, p. 5. (See also S. 2300.) (A. P. H. J., Sept.)

S. 2241. Industrial Rehabilitation of the Blind. Mr. Wadsworth. July 11. Public Buildings and Grounds. No. 9, p. 7. (A. P. H. J., Sept.)

S. 2257. Regulating Sale of Milk, D. C. Mr. Ball. July 13. District of Columbia. No. 9, p. 7. (A. P. H. J., Sept.)

S. 2283. Regulation of Practice of Medicine and Midwifery, D. C. Mr. Ball. July 19. District of Columbia. No. 9, p. 7. (A. P. H. J., Sept.)

S. 2300. Examination of Delinquents Before D. C. Juvenile Court. Mr. Ball. July 22. District of Columbia. No. 10, p. 9. (A. P. H. J., Oct.)

S. 2365. Municipal Surveys by Bureau of the Census. Cited No. 11, p. 5. (A. P. H. J., Oct.)

S. 2411. Vacation of Streets at Walter Reed Hospital. Cited No. 11, p. 5.

S. 2458. Hospital for Veterans Suffering from Mental Diseases. Mr. Stanley. September 21. Finance. No. 12, p. 5. (A. P. H. J., December.)

S. 2473. Protection Water Supply, Kaysville, Utah. Mr. King. September 22. Public Lands and Surveys. No. 12, p. 6.

S. 2547. Amendment Veterans' Bureau Act Concerning Permanent Disability. Mr. Robinson. Oct. 5. Finance. No. 12, p. 5.

S. 2597. Improve Alley Conditions, D. C. Mr. Ball. October 18. District of Columbia. Cited No. 13, p. 3. (A. P. H. J., December.)

S. 2601. Discontinuing Alley Dwellings, D. C. Mr. Myers. October 14. District of Columbia. No. 14, p. 11. (A. P. H. J., December.)

S. 2639. Columbia Institution for the Deaf. Mr. Pomerene. October 20. Education and Labor. No. 14, p. 10.

S. 2668. Appropriation for New Hospital for Veterans. Mr. Ashurst. October 20. Appropriations. No. 15, p. 4. (A. P. H. J., January, 1922.)

S. 2691. Conservation of Food in Interstate Commerce. Cited No. 15, p. 8.

S. 2702. Illegitimate Children, D. C. Mr. Ball. November 9. District of Columbia. No. 15, p. 7. (A. P. H. J., January, 1922.)

Senate Resolutions

S. Joint Res. 30. Additional member on Smoot-Reavis Committee. Mr. Smoot. No. 4, page 5. (A. P. H. J., July.)

S. Joint Res. 46. To investigate health of former soldiers. Mr. Robinson. May 2. Military Affairs. No. 4, p. 8. (A. P. H. J., July.)

S. Joint Res. 104. Army Medical Supplies for Famine Sufferers in Russia. Mr. King. Aug. 19. Appropriations. No. 11, p. 4. (A. P. H. J., Oct.)

S. Joint Res. 130. Monument to General Gorgas. Mr. Heflin. Oct. 20. Library No. 15, p. 6. (A. P. H. J., January, 1922.)

S. Res. 77. Investigation of Lobbying Activities. Mr. King. May 12. Judiciary. No. 5, page 11. Hearings, No. 8, page 7. Report, No. 9, page 5. S. Res. 59. Investigation of Soldier Relief. Mr. Walsh. June 9. Passed. No. 7, page 9. (A. P. H. J., July, Aug., Sept.)

S. Res. 93. Investigation of Bureaus and Agencies Caring for War Veterans. Mr. Sutherland. June 13. Audit and Control of Contingent Expenses. No. 8, p. 6. Hearings. No. 10, p. 6. (A. P. H. J., Oct.)

2. *House Bills*

H. R. 3. Establishing a Veterans' Bureau.

Mr. Sweet. April 11. Interstate and Foreign Commerce. No. 2, p. 9. Hearings, No. 5, p. 6. (See also H. R. 6047; H. R. 6611.) (A. P. H. J., July.)

H. R. 7. Department of Education. Mr. Towner. April 11. Education. No. 2, p. 7. (A. P. H. J., July.)

H. R. 19. Vocational Training for Widows of Ex-service Men. Mr. Newton. April 11. Education. No. 2, p. 12. (A. P. H. J., July.)

H. R. 21. Vocational Education for the Civil Population. Mr. Fess. April 11. Education. No. 2, p. 12. (A. P. H. J., July.)

H. R. 22. Promotion of Physical Education. Mr. Fess. April 11. Education. No. 2, p. 10. (A. P. H. J., July.)

H. R. 65. Prohibition Transportation of Poisons Without Labels. Mr. French. April 11. Interstate and Foreign Commerce. No. 2, p. 15. (A. P. H. J., July.)

H. R. 116. Issuance of Doctors' Licenses to Practice in all States. Mr. Mason. April 11. Interstate and Foreign Commerce. No. 2, p. 14. (A. P. H. J., July.)

H. R. 209. Dawson Springs, Ky., Sanatorium. Cited No. 2, p. 20. (A. P. H. J., July.)

H. R. 216. Incorporating Disabled American Veterans of the World War. Cited No. 9, p. 9. (A. P. H. J., Sept.)

H. R. 1475. Biological Station for State of Washington. Cited No. 11, p. 4. (A. P. H. J., Oct.)

H. R. 2287. Extending Vocational Rehabilitation for Ex-service men. Mr. Rogers. April 11. Education. No. 2, p. 11. (A. P. H. J., July.)

H. R. 2366. Protection of Maternity and Infancy. Mr. Towner. April 12. Interstate and Foreign Commerce. Hearings, No. 9, p. 2; No. 10, p. 3. (A. P. H. J., Sept., Oct.)

H. R. 2382. Reimbursement of Army Officers and Enlisted Men for Private Medical Services. Cited No. 2, p. 20. (A. P. H. J., July.)

H. R. 2492. San Diego Naval Hospital. Cited No. 2, p. 20. (A. P. H. J., July.)

H. R. 2501. Increasing Efficiency, Naval Medical Reserve. Cited No. 2, p. 20. (A. P. H. J., July.)

H. R. 2918. Regulation of Osteopathy, D. C. Mr. Smith. April 13, District of Columbia.

H. R. 2920. School and Home for Feebleminded, D. C. Mr. Tinkham. April 13. District of Columbia. No. 2, p. 17. (A. P. H. J., July.)

H. R. 3203. Health and Safety of Employees of Carriers by R. R. Cited No. 2, p. 21. (A. P. H. J., July.)

H. R. 4104. Free Distribution of Antirabic Virus. Mr. Raker. April 18. Appropriations. No. 2, p. 15. (A. P. H. J., July.)

H. R. 4109. Destruction of Animals Affected with Rabies. Mr. Raker. April 18. Appropriations. No. 2, p. 15. (A. P. H. J., July.)

H. R. 4118. Prevention of Venereal Diseases, D. C. Mr. Raker. April 18. District of Columbia. No. 2, p. 18. Hearings, June 14, No. 7, p. 5. (A. P. H. J., July, Aug.)

H. R. 4130. Bonus for Former Nurses. Cited No. 2, p. 20. (A. P. H. J., July.)

H. R. 4136. Marking Carcasses of Goats with Words "Goat Meat." Cited No. 2, p. 21. (A. P. H. J., July.)

H. R. 4981. Amendment to Pure Food Law. Mr. Haugen. April 25. Agriculture. Passes House, No. 9, p. 5. (A. P. H. J., Sept.)

H. R. 5033. Supplemental to National Prohibition Act. Mr. Volstead. April 25. Judiciary. No. 4, p. 6. Hearings No. 5, p. 6. Progress, No. 7, p. 6. (See also H. R. 6752; H. R. 7294.) (A. P. H. J., July, Aug.)

H. R. 5346. Bureau of Citizenship. Mr. Johnson. April 27. Immigration and Naturalization. No. 4, p. 7. (A. P. H. J., July.)

H. R. 5420. Hospital for Piute Indians, Nevada. Cited No. 4, p. 9. (A. P. H. J., July.)

H. R. 5597. Pension for Widow of Health Hero. Passed Oct. 28. No. 14, p. 8.

H. R. 5617. Bureau to Study Criminal, Pauper, and Defective Classes. Mr. Walsh. May 2. Judiciary. No. 4, p. 9. (A. P. H. J., July.)

H. R. 5631. Extending Vocational Rehabilitation. Cited No. 4, p. 10. (A. P. H. J., July.)

H. R. 5675. Nurses for Totally Disabled Ex-service Men. Cited No. 4, p. 10. (A. P. H. J., July.)

H. R. 5687. Amending War Risk Act Concerning Beneficiaries. Cited No. 4, p. 10. (A. P. H. J., July.)

H. R. 5764. Extending Authority for Expending Money on War Risk Hospitals. Mr. Langley. May 4. Public Buildings and Grounds. No. 4, p. 8. (See also H. R. 6263; H. R. 6300.) (A. P. H. J., July.)

H. R. 5837. Department of Public Welfare. Mr. Fess. May 5. Education. No. 3. Progress. No. 4, p. 2. Hearings, No. 5, p. 2. Status, No. 10, p. 8. (A. P. H. J., July, Oct.)

H. R. 5902. Hospital at Santa Monica, Cal. Cited No. 4, p. 10. (A. P. H. J., July.)

H. R. 6047. Establishing a Veteran's Bureau. Mr. Sweet. May 10. Interstate and Foreign Commerce. No. 5, p. 8. (See also H. R. 6611.) (A. P. H. J., July.)

H. R. 6215. Amending Pure Food and Drug Act. Mr. Voight. May 13. Agriculture. No. 5, p. 12. (See H. R. 8086.) (A. P. H. J., July.)

H. R. 6263. Expenditures for Hospitalization. Mr. Langley. May 16. Public Buildings and Grounds. No. 5, p. 9. (A. P. H. J., July.)

H. R. 6300. General Deficiency Bill. Mr. Good. Appropriations reported May 18. No. 5, p. 11; No. 6, p. 3; No. 7, p. 2. (A. P. H. J., July, Aug.)

H. R. 6566. Deductions on Income Tax for Medical Expenses. Mr. Rosenbloom. May 24. Ways and Means. No. 6, p. 6. (A. P. H. J., Aug.)

H. R. 6570. Quarantine Station at Ft. Morgan, Ala. Cited No. 6, p. 9. (A. P. H. J., Aug.)

H. R. 6611. Establishing a Veterans' Bureau. Mr. Sweet. May 25. Interstate and Foreign Commerce. No. 6, p. 2. Passed House, June 10, No. 7, p. 4. Hearings, Senate, No. 8, p. 7. Passed Senate, July 20, No. 9, p. 3. Conference Report adopted, Aug. 1 and 2, No. 10, p. 5. Signed by President, Aug. 9. No. 11, p. 2. (A. P. H. J., Aug., Sept., Oct.)

H. R. 6682. Broadview Hospital in Cook County, Ill. Cited No. 6, p. 9. (A. P. H. J., Sept.)

H. R. 6752. Supplemental to National Prohibition Act. Mr. Volstead. June 1. Judiciary. No. 6, p. 4. (See also H. R. 7294.) (A. P. H. J., Aug.)

H. R. 6961. Land for Searcy Hospital, Ala. Cited No. 7, p. 11. (A. P. H. J., Aug.)

H. R. 7038. Child Labor, etc. D. C. Cited No. 7, p. 11. (A. P. H. J., Aug.)

H. R. 7112. Regulation of Cold Storage Foods. Mr. Haugen. June 13. Agriculture. No. 7, p. 10. (A. P. H. J., Aug.)

H. R. 7156. Prohibiting Interstate Sale of Articles Contaminated with Anthrax. Mr. Winslow. June 15. Interstate and Foreign Commerce. No. 7, p. 9. (A. P. H. J., Aug.)

H. R. 7159. Authorizing Former Army Medical Officers to Practice in any Territory. Mr. Patterson. June 15. Territories. No. 7, p. 9. (A. P. H. J., Aug.)

H. R. 7212. Examination of Delinquents Before D. C. Juvenile Court. Mr. Underhill. June 17. No. 8, p. 12. Hearings, July 13, No. 9, p. 5. (See also H. R. 7883.) (A. P. H. J., Sept.)

H. R. 7294. Supplemental to National Prohibition. Mr. Campbell. June 21. Judiciary. No. 8, p. 4. Progress, No. 9, p. 4; No. 10, p. 8; No. 11, p. 2. (A. P. H. J., Sept., Oct.)

H. R. 7365. Hospital at Galveston, Texas. Cited No. 8, p. 13. (A. P. H. J., Sept.)

H. R. 7369. Pollution of Navigable Waters. Mr. Appleby. June 24. Rivers and Harbors. No. 8, p. 11. (A. P. H. J., Sept.)

H. R. 7459. Levying Tax on Condensed, Evaporated, Concentrated Milk. Mr. Fordney. June 29. Ways and Means. No. 8, p. 12. (A. P. H. J., Sept.)

H. R. 7541. Commissioned Status for Sanitary Engineers in the Public Health Service. Mr. Sweet. July 1. Interstate and Foreign Commerce. No. 8, p. 11. (A. P. H. J., Sept.)

H. R. 7570. Regulation of Optometry, D. C. Cited No. 8, p. 13. (A. P. H. J., Sept.)

H. R. 7659. Regulating Embalming and Undertaking, D. C. Cited No. 9, p. 9. (A. P. H. J., Sept.)

H. R. 7687. Witnesses for Boards of Investigation of U. S. P. H. S. Cited No. 9, p. 8. (A. P. H. J., Sept.)

H. R. 7689. Industrial Rehabilitation of the Blind. Mr. Ten Eyck. July 9. Public Buildings and Grounds. No. 9, p. 7. (A. P. H. J., Sept.)

H. R. 7738. Reimbursement of Army Personnel for Civilian Medical Services, etc. Cited No. 9, p. 8. (A. P. H. J., Sept.)

H. R. 7746. Regulating Sale of Milk, D. C. Mr. Focht, July 13. District of Columbia. No. 9, p. 7. (A. P. H. J., Sept.)

H. R. 7787. Continuing Monthly Labor

Review. Cited No. 9, p. 8. (A. P. H. J., Sept.)

H. R. 7883. Examination of Delinquents Before D. C. Juvenile Court. Report, July 28, No. 10, p. 9. (A. P. H. J., Oct.)

H. R. 8083. Sale of Old Naval Hospital, D. C. Cited No. 11, p. 5.

H. R. 8084. Vacation of Streets Through Walter Reed Hospital, D. C. Cited No. 11, p. 5.

H. R. 8086. Prohibiting Shipment of Filled Milk in Interstate Commerce. Mr. Voight. Aug. 4. Agriculture. No. 11, p. 5. Reported Aug. 19, No. 11, p. 3. (A. P. H. J., Oct.)

H. R. 8127. Juvenile Court, D. C. Cited No. 11, p. 5. (A. P. H. J., Oct.)

H. R. 8128. Wife and Child Desertion, D. C. Cited No. 11, p. 5.

H. R. 8129. Illegitimacy, D. C. Cited No. 11, p. 5.

H. R. 8245. Tax Revision. Passed House, Aug. 20, No. 11, p. 4.

H. R. 8365. Post Office Cancellation Stamp for Cincinnati Public Health Exposition. Cited No. 11, p. 5. (A. P. H. J., Oct.)

H. R. 8378. Prohibiting Manufacture and Sale of Adulterated Butter. Mr. Browne. Aug. 23. Agriculture. No. 11, p. 4. (A. P. H. J., Oct.)

H. R. 8462. Status of Enlisted Men for Dietitians Serving with A. E. F. Mr. Swing. September 28. Military Affairs. No. 12, p. 6.

H. R. 8527. Amendment to Veterans' Bureau Act Concerning Regional Offices. Mr. Parks. October 7. Interstate and Foreign Commerce. No. 12, p. 7.

H. R. 8566. To Recognize and Promote Efficiency in the U. S. Public Health Service. Mr. Dyer. October 10. Interstate and Foreign Commerce. No. 13, p. 5. (A. P. H. J., December.)

H. R. 8567. Safety of Railroad Employees and Travelers. Cited No. 13, p. 8.

H. R. 8676. Appropriation for Athletic Sports in Army. Cited No. 13, p. 8.

H. R. 8783. Pollution of Navigable Streams by Acids. Mr. Rosenbloom. October 20. Rivers and Harbors. No. 14, p. 5.

H. R. 8791. Appropriation for New Hospitals for Veterans. Mr. Langley. October 21. Public Buildings and Grounds. No. 14, p. 9. (A. P. H. J., December.)

H. R. 8794. Discontinuing Alley Dwellings, D. C. Mr. Focht. October 21. District of Columbia. No. 14, p. 11. (A. P. H. J., December.)

H. R. 8907. Admitting Civilian U. S. Employees with Tuberculosis to Government Hospitals. Mr. Hudspeth. October 28. Interstate and Foreign Commerce. No. 14, p. 10.

H. R. 8911. Columbia Institution for the Deaf. Mr. Layton. October 28. District of Columbia. No. 14, p. 10.

H. R. 8955. Control of Milk, D. C. Mr. Focht. November 1. District of Columbia. No. 15, p. 7. (A. P. H. J., January, 1922.)

H. R. 8959. Amendment to Veterans' Bureau Act Concerning Permanent Disability. Mr. Dupre. November 1. Interstate and Foreign Commerce. No. 15, p. 4.

H. R. 9019. Hospitals for Piute Indians. Mr. Arenz. November 4. Indian Affairs. No. 15 No. 5.

H. R. 9046. Sanitary District of Chicago. Mr. Michaelson. November 9. Rivers and Harbors. No. 15, p. 6. (A. P. H. J., January, 1922.)

House Resolutions

H. Res. 105. Investigation of American Red Cross in New York. Cited No. 6, p. 9. (A. P. H. J., Aug.)

H. Res. 165. Pellagra in South. Mr. Byrnes. July 28. Interstate and Foreign Commerce. No. 10, page 12. (A. P. H. J., Oct.)

H. Res. 195. Investigation of Consultant Board for Selection of Hospital Sites. Mr. Fitzgerald. Oct. 10. Rules No. 13, p. 7.

H. Joint Res. 148. Relief for Flood Sufferers of Colorado. No. 7, page 7. (A. P. H. J., Aug.)

H. Joint Res. 174. Expense of Smoot-Reavis Committee, No. 9, page 6. (A. P. H. J., Sept.)

H. Joint Res. 218. Army Medical Supplies for Russia. Mr. Kahn. Nov. 2. Military Affairs. No. 15, p. 4.

H. Joint Res. 221. Clothes for Veterans in Hospitals. Cited No. 15, p. 8.

3. *Subject Index*

A

Alleys, D. C., S. 2597, S. 2601, H. R. 8794. (A. P. H. J., December.)

American Red Cross, Investigation of H. Res. 105.

American Society for Control of Cancer, Incorporation of S. 802.

Animals, Destruction of, Affected with Rabies. H. R. 4109.
Anthrax, Sale of Articles Contaminated with Prohibited. H. R. 7156.
Anti-beer Bill, S. 2116. H. R. 5033. H. R. 6752. H. R. 7294.
Army Officers:
Former Medical Authorized to Practice in any Territory. H. R. 7159.
Medical Reserve Corps, No. 15, p. 9.
Reimbursement for Private Medical Services. H. R. 2382.
Retirement of. S. 1565.
Army Personnel, Reimbursement for Civilian Services. H. R. 7738.
Athletic Sports in Army, H. R. 8676.

B

Biological station, State of Washington. H. R. 1475.
Blind, Incorporating Light Houses for. S. 1944.
Blind, Industrial Rehabilitation of. S. 2241. H. R. 7689.
Butter, Prohibiting Adulterated. H. R. 8378.

C

Child Labor, D. C. S. 2040. H. R. 7038.
Child Welfare, D. C. S. 2205. S. 2206. S. 2209. S. 2709. H. R. 8127. H. R. 8128. H. R. 8129.
Child Welfare Legislation, Review of, No. 14, p. 12.
Chiropractic, Regulation of. D. C. S. 624.
Cincinnati Public Health Exposition. H. R. 8365.
Citizenship, Bureau of. H. R. 5346.
Cold Storage. S. 812. H. R. 7112.
Columbia Institution for the Deaf. S. 2639, H. R. 8911.
Compensation:
Extending for Government Employees. S. 1109. S. 1911.
Increasing for Totally Disabled Persons. S. 1497.

D

Defective Classes, Bureau to Study. H. R. 5617.
Deficiency Appropriations. H. R. 6300.
Delinquents, Examination of, D. C. S. 2208. S. 2300. H. R. 7212. H. R. 7883.
Dietitians, H. R. 8462.
Disability, Permanent. S. 2547, H. R. 8959.
Dust Explosions. S. 321.

E

Education, Department of. H. R. 7.
Embalming and Undertaking, D. C. S. 2083. H. R. 7659.

F

Feeble-minded, School and Home for, D. C. H. R. 2920.
Filled Milk, Prohibition of. H. R. 8086.
Fires, Investigation of. S. 321.
Flood in Colorado, H. Joint Res. 148.
Food and Drugs Act, Extending. S. 1887.
Food Conservation of. S. 2691.

G

General Deficiency Bill. H. R. 6300.
Goat Meat. H. R. 4136.
Gorgas, S. J. Res. 130. (A. P. H. J., January, 1922.)
Government Reorganization. S. Joint Res. 30. H. Joint Res. 174.
See also Statements No. 4, p. 5; No. 5, p. 7; No. 7, p. 6; No. 9, p. 6. (A. P. H. J., July, Aug., Sept.)

H

Health, National Department of. S. 526.
Honest Merchandise Act. S. 1882.
Hospitals:
Broadview, Cook County, Ill. H. R. 6682.
Dawson Springs, Ky. H. R. 209.
Galveston, Texas. H. R. 7365.
Mental Diseases, Veterans, S. 2458. (A. P. H. J., December.)
Piute Indians, Nevada. H. R. 5420, H. R. 9019.
St. Louis. S. 1198.
St. Louis Marine, Sale of. S. 132.
San Diego. H. R. 2492.
Santa Monica, Cal. H. R. 5902.
Searcy, Ala. H. R. 6961.
Veterans, S. 2668, H. R. 8791. (A. P. H. J., December 1921, January 1922.)
Walter Reed, D. C. S. 2411. H. R. 8084.
War Risk Expenditures. H. R. 5764. H. R. 6263. See also Statement No. 8, p. 5. (A. P. H. J., Sept.)
Hospitals, Coördination of Federal, No. 15, p. 5. (A. P. H. J., January 1922.)
Housing, Division of. S. 1890.

I

Income Tax, Deductions for Medical Expenses. H. R. 6566.
Interdepartmental Social Hygiene Board. H. R. 6300. See also Statements No. 4, p. 4; No. 6, p. 3. (A. P. H. J., July, Aug.)
International Sanitary Convention of 1903, Denunciation of statement. No. 6, p. 5. (A. P. H. J., Aug.)

Investigations:
American Red Cross. H. Res. 105.
Lobbying. S. Res. 77.
Soldiers Health. S. Joint Res. 46.
U. S. Public Health Service. H. R. 7687.
War Veterans, Care of. S. Res. 93.

K

Kaysville, Utah Water Supply. S. 2473.

L

Light Houses for Blind. S. 1944.
Live Stock, Quarantine of. No. 13, p. 9.
Lobbying Activities. S. Res. 77.

M

Malt Liquors and Wines, Regulations for Medicinal Use. No. 14, p. 3.
Maternity and Infancy Bill. S. 1039. H. R. 2366.
Medical Reserve Officers' Regulations. No. 15, p. 9.
Medical Society, D. C. S. 1591,
Milk, Condensed, Evaporated, Concentrated, Tax on. H. R. 7459.
Milk, Filled, Prohibition of. H. R. 8086.
Milk, Regulating Sale of, D. C. S. 2257. H. R. 7746, H. R. 8955. (A. P. H. J., September 1921, January 1922.)
Midwifery, Regulation of, D. C. S. 2283.
Monthly Labor Review. H. R. 7787.

N

Narcotic Drugs, Regulations for No. 14, p. 9.
National Budget. S. 1084.
Naval Medical Reserve. H. R. 2501.
Nurses. H. R. 4130. H. R. 5675.
Nursing, Government Activities for Ex-Service Men. No. 12, p. 7.

O

Opium, Prohibiting Exportation of. S. 206.
Optometry, Regulation of, D. C. H. R. 7570.
Osteopathy, Regulation of, D. C. S. 749. H. R. 2918.

P

Pellagra in South. H. Res. 165.
Physical Education. H. R. 22.
Poisons, Prohibiting Transportation of without Labels. H. R. 65.
Pollution of Navigable Waters. H. R. 7369, H. R. 8783.
Practice of Medicine:
D. C. S. 810. S. 2283.
General. H. R. 116. H. R. 7159.
President's Message to Congress. Statement No. 2, p. 3. (A. P. H. J., July.)
Prohibition, Supplemental to National. S. 2116. H. R. 5033. H. R. 6752. H. R. 7294.
Proprietary Medicines, Tax on. H. R. 8245.
Public Works, Department of. S. 1896.
Pure Food and Drugs Act. S. 1887. H. R. 4981. H. R. 6215.

Q

Quarantine Station, Ft. Morgan, Ala. H. R. 6570.

R

Rabies. H. R. 4104. H. R. 4109.
Railroad Employees, Health and Safety of. H. R. 3203, H. R. 8567.
Russia, Army Medical Supplies for. S. J. Res. 104, H. J. Res. 218.

S

Sanitary Engineers, Commissions for, in U. S. P. H. S. H. R. 7541.
Sanitary Reserve, U. S. Public Health Service. S. 525.
Sheppard-Towner Bill. S. 1039. H. R. 2366.
Smoot-Reavis Joint Reorganization Committee. Statements No. 4, p. 5; No. 5, p. 7; No. 7, p. 6; No. 9, p. 6. (A. P. H. J., July, Aug., Sept.)

T

Tariff, Statement No. 10, p. 11.
Tobacco for Ex-service Hospital Patients. S. 1718.
Tuberculosis, Care of Government Employees Stricken with. S. 1971.

U

U. S. Public Health Service. S. 525. S. 2208. H. R. 7212. H. R. 7541. H. R. 7687. Statements No. 2, p. 5; No. 10, p. 13. (A. P. H. J., July, Oct.)

V

Venereal Diseases, D. C. H. R. 4118.
Veterans' Bureau. H. R. 3. H. R. 6047. H. R. 6611, H. R. 8527.
Vivisection. S. 758.
Vocational Education or Training. H. R. 19. H. R. 21. H. R. 2287. H. R. 5631.

W

War Risk, Consolidation with Public Health Service. Statement No. 2, p. 5. (A. P. H. J., July.)
War Risk Insurance. H. R. 5687. H. R. 5764, H. R. 8647.
Welfare, Department of Public. S. 1607. S. 1839. H. R. 5837.
Welfare, Department of Social. S. 408.
Welfare Division in the Post Office Department. Statements No. 8, p. 10; No. 10, p. 8. (A. P. H. J., Sept., Oct.)

STATE HEALTH NOTES—GENERAL

California

During the past few years municipal and private automobile camps in California have increased in number until at the present time more than 160 cities maintain camps for the convenience of automobile tourists, and there are, in addition, at least 100 private camps throughout the state. While the establishment of such camps is a considerable factor in bringing business to the community and in attracting permanent settlers, their chief function lies in the provision, under supervision, of sanitary facilities for tourists, thus doing away with promiscuous camping on the outskirts of towns, with all of its disagreeable features. Through the establishment of organized, well-equipped camping places in definite locations, promiscuous camping along the state highways, streams, and on important watersheds is done away with, not through force, but simply through the provision of better facilities in selecting locations for camping in comfort.

Automobile traveling and camping have increased to such an extent during the past few years in California that the State Board of Health, in order to protect the health and comfort of the traveler, as well as of the communities through which he may travel, has adopted rules and regulations for their sanitary control.

✣

The Southern Pacific Company which handles the ferry service on San Francisco Bay is said to give more attention to the sanitation of its vessels than to any other problems except those directly involved in navigating the steamers. The boats of this company carried about 27,000,000 persons during the year 1920. This is an average of about 2,200,000 a month or about 74,000 a day.

The sanitation of the kitchens and dining rooms receives the utmost attention, and a staff of cleaners is constantly employed. On every steamer, the work of cleaning is assigned to individual members of the crew. Daily inspections are made by the captain to see that their duties are properly carried out. During the day, of course, only light work can be done so that all the heavy cleaning is done during the night after the boats have finished their day's work. During this latter period, the main deck is washed down, the outside of the boat is cleansed, all windows are cleaned and all other appliances are thoroughly scrubbed and disinfected. When time permits, the steamers are fumigated by means of sulphur. The purpose of this, of course, is to rid the boat of rodents.

Illinois

Of more than usual interest are the results of a recent investigation by one of the field physicians of the State Department of Public Health into a mild outbreak of typhoid fever at Mt. Carroll in Carroll County. The chain of epidemiological evidence pointed to a certain milk producer as the source of four or five cases. A laboratory examination of the dairyman's feces showed that he is an active typhoid carrier, although 43 years have elapsed since he was a typhoid fever victim.

✣

One of the most significant public-health events of the year in Illinois was the school of instruction for district health superintendents recently conducted by the State Department of Public Health in Springfield and Chicago. It was arranged and carried out primarily for the benefit of newly appointed state health officers, many of whom had no experience in public health service.

The session covered a period of seven days and was divided into two sections, one dealing with theoretical and one with practical phases of public-health administration. The theoretical courses were given in Springfield where the district health superintendents had the opportunity to visit the various divisions of the department and to become thoroughly familiar with the policies and methods by hearing lectures from the director and his division chiefs. For the practical course, the superintendents went to Chicago where the methods employed in administering public health are unsurpassed. There they visited various public clinics, hospitals, water purification and milk pasteurization plants, open-air schools, welfare centers and other institutions doing work of a public-health nature. They also had the privilege of seeing the Chicago health de-

partment in action with reference to communicable disease control methods, medical inspection of school children and dairy inspection.

✠

The widespread prevalence of diphtheria in Illinois has resulted in unprecedented demands on the State Department of Public Health for antitoxin and for diagnostic laboratory service. Requests for antitoxin have more than trebled during the last two months, while an unusually large number of diphtheria cultures has been received for laboratory examination. Very few requests for toxin-antitoxin have been received, although the Department is prepared to furnish it to physicians without cost. In reviewing the diphtheria situation the records show a considerably greater incidence at present than has been the case during any previous year since 1917. For the first nine months of this year, 11,016 cases were reported, as compared with 5,673, 5,440 and 6,659 for the same months in 1918, 1919 and 1920, respectively. Each month of the year has uniformly shown a greater incidence than corresponding months in the other years noted, and incomplete reports for October indicate that the same thing will be true for that month. At a number of places the situation has taken on epidemic proportions serious enough to cause the closing of schools. Many communities have called upon the Department for assistance of one kind or another, and many reports of quarantine violations have been received. All such cases are being investigated.

The Department furnishes antitoxin, toxin-antitoxin and diagnostic laboratory service to physicians free of charge. Approved mailing containers are also supplied on request. For the convenience of physicians branch laboratories are maintained at Chicago, Mt. Vernon, Moline, Ottawa, Urbana and Galesburg.

✠

In view of the continued prevalence of poliomyelitis in Illinois, the State Department of Public Health and the Department of Animal Pathology and Hygiene of the State University are coöperating in efforts to determine, if possible, whether or not a relation exists between cases of poliomyelitis among humans and of paralysis among farm animals. The study grew out of the fact that frequently cases of both are found on the same premises. In carrying out the investigation the Department of Health furnishes the University with information relative to the location of poliomyelitis cases while the University collects specimens of excretions and secretions for bacteriological and microscopic study. Up to the present time no post-mortems in poliomyelitis cases have been made for the reason that death reports have reached the state officials too late to carry out the necessary work prior to burial, and objections to disinterment usually arise. Plans to obtain immediate death reports in these cases are now being made, with the hope of accomplishing more extensive research work than has been heretofore possible. Those in charge of the investigation feel quite hopeful of reaching some interesting conclusions.

Indiana

Recently the aeroplane has been used in propagating the gospel of health in Indiana. Dr. Ada Schweitzer, director of the Division of Infant and Child Hygiene, of the Indiana State Board of Health, found she had accidentally made conflicting dates in her work. The town of LaGrange is in the northern part of the state of Indiana, bordering Michigan. In this town, the Infant and Child Hygiene Division, which is carried in automobiles over the state with its exhibits and general paraphernalia, was engaged for one week in September. Dr. Schweitzer's conflicting engagement was in the city of Sullivan, two hundred and forty miles from LaGrange, as the bird flies. Major Albert T. Rich, U. S. Army Instructor, Indiana National Guard, and Major Fagley, commanding the aero squadron, offered to carry Dr. Schweitzer. After fulfilling her engagement in LaGrange in the forenoon, she flew to Sullivan in time to keep her engagement for the evening at that place. The journey was begun at three o'clock in the afternoon and two hours and a half later was ended in Sullivan. Dr. Schweitzer's departure from LaGrange and her arrival in Sullivan were matters of great interest to the inhabitants and helped her materially in her work at Sullivan, where the public had been informed of her coming. A great crowd was gathered to witness the landing, and that

night the auditorium could not hold the masses that assembled to hear the public-health messages she bore. The aero authorities of Indiana's military organization have offered their services for public-health work in the future.

Kansas

The annual meeting of the Kansas Public Health Association was held in collaboration with the Kansas Conference of Social Work in Topeka December 6, 7 and 8. The sections on tuberculosis, public-health administration and social hygiene presented interesting programs. Steps are being taken for organizing a section on laboratories, a section on public-health nursing, and a section on mental hygiene. The next annual meeting will be held in October, 1922.

✣

The Kansas State Board of Health has put on an extensive program during the past three months, encouraging the immunization of school children to diphtheria by the use of toxin-antitoxin. In one county the entire school population was immunized, and in a large number of school districts, mostly in the cities, a successful program was consummated.

✣

The State Board of Health, in connection with the International Health Board, has offered assistance to six counties in the state for the purpose of putting on a full-time health demonstration, three counties having thus far been secured, and already there is widspread approval among the people of those counties for the full-time health organization work. These three counties, together with four others, previously operating, make a total of seven full-time health organizations in operation in Kansas.

✣

Cancer Week was quite generally observed throughout the state, the program for the most part being put on by the local county medical societies. Where the local society's interest could not be aroused, a successful program was put on by the local health departments. About 40,000 pieces of literature on the menace of cancer were distributed.

✣

Health Week, in coöperation with the Rotary Clubs of the state, was widely observed, the Rotary Clubs, in general, entering into the spirit of the occasion with the same pep and enthusiasm that has characterized Rotary from the beginning of this remarkable organization's existence. Altogether, it is thought that much good has been accomplished in an educational way.

✣

Kentucky

A National Health Exposition will be held in the Jefferson County Armory at Louisville, February 1-9, 1922. This is under the auspices of the United States Public Health Service, the State Board of Health of Kentucky, Jefferson County Board of Health and the Health Department of the city of Louisville. It will include exhibits in hospitalization, nursing, dentistry, medicine and pharmacy. The University of Louisville, the public school system, and various local, state and national health organizations will participate.

The annual conference of the city and county health officers, the annual convention of the Kentucky State Public Health Association and other health meetings are already scheduled in connection with the Exposition.

An institute will be conducted by the United States Public Health Service and its program will include:

Dr. M. J. Rosenau, dean of the Harvard School of Public Health; Dr. S. Josephine Baker, director of the Department of Child Hygiene, New York City Board of Health; Dr. Wm. A. Evans, former health officer of Chicago and the most distinguished public health editor in America; George T. Palmer, president of the Illinois Tuberculosis Association and director of the Bureau of Tuberculosis of the Illinois State Board of Health; Dr. Frederick E. Greene, secretary of the Council of Health and Public Instruction, American Medical Association; Dr. Valeria H. Parker, executive secretary of the Interdepartmental Board of Social Hygiene; Dr. John H. Stokes, distinguished syphilographer of the Mayo Clinic; Dr. Frankwood Williams, associate director of the National Committee for Mental Hygiene; Dr. W. S. Rankin, state health officer of North Carolina, a member of the Council of Health and Public Instruction of the American Medical Association and recently president of the American Public Health Association; Dr. John Dill Robert-

son, health officer of Chicago; Dr. John R. McDowell, director of health for the Lake Division, American Red Cross; Dr. John R. McMullen, United States Public Health Service, and Miss Frances Brink, of the National Organization for Public Health Nursing.

Expenses will be paid through the sale of commercial exhibit space to a limited number of reputable firms.

Michigan

The general death-rate of the state of Michigan dropped to 11.0 per 1,000 population during November and the infant mortality rate to 66.7 per 1,000 living births. This is the best standing the state has reached since last June, according to reports issued by the State Department of Health.

For the first 11 months of 1921 Michigan has maintained an average birth rate of 25.1 per 1,000 population, a general death rate of 11.8, and an infant mortality of 79.9. A total of 87,655 births and 40,475 deaths has been recorded up to Dec. 1.

Rural communities, representing 38 per cent of the state's population, have furnished 36 per cent of the total number of births and 41 per cent of the deaths. Urban communities represent 62 per cent of the total population. They have furnished 64 per cent of the births and 59 per cent of the deaths.

Except for unforeseen conditions, authorities say that 1921 will probably establish a health record for the state. General improvement is noted over 1920 when the general death-rate for the year was 14.0, the birth-rate 24.9, and the infant mortality rate 92.4.

Texas

The first whole-time medical staff employed by the University of Texas has recently made its first annual report. The staff consists of four physicians: Dr. C. W. Goddard, chief of staff; Dr. C. S. Gates, physician for men; Dr. Ethel Lyon Heard, physician for women, and Dr. S. N. Key, eye, ear and throat specialist, all of whom, with exception of Dr. Key, give their whole time to the University. Mrs. Minnie E. Clarke, secretary of the staff, and S. N. Ekdahl, sanitary inspector, complete its personnel.

Students are encouraged to report immediately all minor ailments to the medical staff, and, by doing so, it is believed that much sickness of a more serious nature has been prevented. Prompt attention is given to all contagious and infectious diseases, and quarantine and other measures enforced to prevent their spread. Careful attention is also given in each instance to avoid unnecessarily detaining students from attending classes on account of exposure to contagious and infectious diseases.

Complete physical examinations are made of matriculants upon entrance. A folder on which the examination is noted is made out for each student, and all subsequent services for the student are recorded on it. These records are kept on file and contain valuable statistics.

The medical staff established a system to improve the sanitation of all university buildings, grounds, fraternity and sorority houses, boarding and rooming houses, cafes, swimming pools, picture shows, and all other places where students congregate. The sanitary inspector makes regular inspections, files reports in writing to the chief of staff, and corrective measures are instituted where defects are found.

Attention was given to the eradication of mosquitoes, and a general clean-up campaign inaugurated in the university neighborhood. The staff invited the coöperation of the people of Austin, as well as the city officials, and met with a most cordial response.

It is desired on the part of the University that the students be developed and made stronger physically as well as mentally. The medical staff believes this is being done through the efficiency of the physical training departments, and by giving careful attention to the health of the students. The staff is coöperating in every way possible with the physical training departments. Students are given careful physical examinations and then classified for athletic and other physical training, according to conditions found. Special classified courses of physical training are prescribed for those found to have gross physical defects. Records on file show improvement of these defects in some of the students assigned to special physical training courses. Few exemptions from physical training were found to be necessary.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Presence of the Tubercle Bacillus in the Duodenal Fluid.—The author having ascertained by the use of the duodenal tube that the tubercle bacillus is present in the duodenum in advanced stages of tuberculosis, investigated the diagnostic value of the method in cases in which the bacteriological proof of the disease was not otherwise forthcoming. For this purpose 7 cases were examined, consisting of 4 cases of tuberculous peritonitis of the ulcerative or fibro-caseous form without intestinal disturbance, 1 case of Poncet's rheumatism, 1 case of encysted pneumo-thorax with emphysema and disseminated bronchitis without bacilli in the sputum, and 1 case of cervical and mediastinal ademitis, with fever resembling that of miliary tuberculosis. The result was positive in 3 cases. In another group, consisting of 11 patients in whom tuberculosis was probably not present, the results were constantly negative. The cases thus show that the tubercle bacillus may be eliminated by the bile and pancreatic juice even in cases where there are no bacilli in the sputum.—Carnot and Libert, *Bull. et Mém. Soc. Méd. des Hôsp. de Paris,* July 21, 1921; *Brit. Med. Jour.,* Oct. 8, 1921.

✣

Variations in the Normal Leucocyte Count.—The authors state that variations in the normal leucocyte count are due to numerous causes, such as the erect or recumbent position, examination of the blood from the finger or the ear, a state of fasting or digestion, apnoea or amplitude of the respiratory movements, each of these factors being sufficient to cause changes in the blood counts. During their service in the army, the writers made repeated examination of their own leucocytes from 8 A. M. to 8 P. M., as many as twenty-three examinations being made in the course of the day on the same person. They were leading at the time a quiet life, avoiding physical exertion and taking the ordinary diet of an officers' mess. Their results were as follows: (1) In the normal individual the number of leucocytes varies from one moment to another. (2) The variations are least marked the first thing in the morning, and are most pronounced between 3:00 P. M. and 9:00 P. M., when the total number of leucocytes may range from 12,300 to 6,500 in the course of half an hour. The different estimates relating to digestive leucocytosis are thus explained, for according to the hour, or rather the minute at which the blood is taken, there may be a leucopenia or a leucocytosis. The term "digestive oscillations" is therefore preferable to "digestive leucocytosis." (3) The normal polymorphonuclear percentage presents great variations, ranging from 47 to 73 per cent in one of the writers, and from 43 to 67 per cent in the other. (4) The polymorphism, frequency, and suddenness in the leucocyte changes in normal subjects should make one very reserved as to their interpretation.—Maurice and Cabouat, *Paris Méd.,* May 21, 1921; *Brit. Med. Jour.,* Aug. 27, 1921.

✣

Organisms of B. Lactimorbi Group Simulating B. Diphtheriae.—In normal and pathologic throats, organisms occur from time to time which under routine conditions so closely resembles *B. diphtheriae* as to cause possible confusion. These organisms may be readily differentiated even under these conditions, by certain constant morphologic characteristics, and when isolated spores and motility are seen.—Roger G. Perkins and D. S. Spreng, *Jour. Inf. Dis.,* 29, 513, (1921).

✣

Further Observations on a Rapid Method of Pneumococcus Typing.—The description of the original method appeared in the *Jour. Inf. Dis.,* 27, 310, (1920). In 100 consecutive, unselected cases of pneumonia, in all but two instances, a typing of the pneumococcus has been effected within from 30 to 40 minutes by the rapid precipitin method, which was checked by the longer cultural or mouse method. The substitution of inulin for dextrose, and the addition of Andrade indicator seems to possess certain advantages over the standard Avery cul-

tural method.—Wade W. Oliver, *Jour. Inf. Dis.*, 29, 518 (1921).

✠

The Occurrence of Hemolytic Streptococci in the Normal Throat.—Cultures taken at short intervals sooner or later reveal the presence of hemolytic streptococci in the throats of practically all normal adult persons. The cocci, as revealed by throat swabs are not numerous; far less, according to the author's experience, than in the crypts of tonsils or adenoids.—David J. Davis, *Jour. Inf. Dis.*, 29, 524 (1921).

✠

The Thermal Death-Point of the Human Intestinal Protozoan Cysts.—In a group of experiments, with the aid of the eosin-criterion of viability, the thermal death-point of the different cysts of the parasitic intestinal protozoa of man was determined as follows: Entamoeba histolytica, 68°C.; Entamoeba coli, 76°C.; Iodamoeba biitschlii, 64°C.; Endolimax nana, 64° C.; Giardia intestinalis, 64°C., and Chilomastix mesnili, 72°C. In quoting the above temperatures as the thermal death-points, it will be remembered that they are subject to a slight downward deviation of generally 2°C., since all the experiments upon each species of cysts did not end in a common thermal death-point. The remarkable resistance of all the protozoan cysts to the high temperature is quite analogous to that of the spores of bacteria; in both cases the thermal death-point is much higher than that of their respective vegetative and non-spore bearing stage.—William C. Boeck, *Am. Jour. Hyg.*, 1, 365 (1921).

✠

Changes in the Cerebrospinal Fluid in Early Syphilis.—The authors remark that the cerebrospinal fluid in the early stages of syphilis, even when there are no clinical nervous symptoms, shows changes similar to those found in cerebrospinal syphilis and general paralysis. As hitherto no systematic comparative investigations have been made correlating the changes in the cerebrospinal fluid with those in the central nervous system, the writers examined 31 cases, consisting of 4 of acquired syphilis in adults, 26 of congenital syphilis in infants, and one foetus, with the following results: When the cerebrospinal fluid was positive, changes were found in the central nervous system, especially the meninges; the spinal cord was always normal, though in one case meningeal infiltrations were found over the cerebellum and in another case over the cerebral hemispheres. In children the Wassermann reaction was more frequently positive than in adults when lymphocytosis was scanty or absent.—Koenigstein and Spiegel, *Wien, Klin. Woch.*, June 16, 1921; *Brit. Med. Jour*, Aug. 20, 1921.

✠

Nonprotein Nitrogen in Nephritis.—Chronic nephritis with hypertension and uremia is characterized by a marked increase in the amount of the nonprotein nitrogen substances in the blood and a low phthalein excretion. Chronic nephritis of moderate degree with hypertension is associated with a moderate increase in the amount of waste nitrogen in the blood and a lessened kidney function. Cardiac inefficiency without nephritis is associated with a moderate retention of the nonprotein nitrogen substances in the blood, more particularly the uric acid. In chronic nephritis with clinical and anatomic evidence of disease there is nitrogen retention and renal inefficiency. The presence of albumin and casts in the urine is not necessarily diagnostic of nephritis, nor is their absence necessarily indicative of the nonexistence of such disease. Improvement of the circulatory disturbance is accompanied by a decrease in the various introgenous extractives of the blood, more particularly the uric acid, and this may suggest that at least a part of the damage done the kidneys is a sequence of the alterations in its nutrition brought about by passive hyperemia.—J. Lisle Williams, *Arch. Int. Med.*, 28, 426 (1921).

✠

The Sachs-Georgi Precipitation Test For Syphilis.—Heated serum should be used; unheated serums from positive cases may fail to cause precipitation in any concentrations. (A wide range of concentrations has been tested.) The concentrations of serum recommended should not be exceeded, since heated normal serums in large amounts—for example, 0.2 to 0.3 c. c.—may cause precipitation. No positive case has been met with in which the usual amounts of heated serum employed failed to show precipitate, but the reaction may be more marked with 0.05 c. c. of serum than with

0.1 c. c. The mixture must be kept at 37°C., as precipitate may form with non-syphilitic serums at lower temperatures. Sometimes, however, it is advantageous in the case of weak reactions to record results after the tubes have stood for thirty minutes further at room temperature, but the behavior of the negative control must be carefully scrutinized. The results should be controlled by including in each series of test known negative, weak and strong positive serums, just as in the case of the Wassermann reaction.—T. Taniguchi and N. Yoshinare, *Brit. Med. Jour.,* Aug. 13 (1921).

✣

Studies of the Chemistry of the Body in Diseases of the Skin.—In mild cases of eczema no disturbances were observed in the chemical composition of the blood nor in the condition of the hydrogen-ion concentration of the body fluids. In eczema accompanied by other metabolic derangement the deviation of the blood chemistry was due to the metabolic diseases, as, for example, diabetes. In the latter case conditions of acidosis were noticed. In severe diffuse eczema we observed a state of acidosis, an increased ethereal sulphate fraction in the urine, indicative, perhaps, of intestinal putrefaction, but otherwise a normal blood chemistry. No marked deviation in the blood chemistry, aside from hyperglycemia, was observed in cases of acne vulgaris. In cases of psoriasis the non-protein sulphur of the blood seemed to show larger figures than usual. In one case of xanthoma a marked increase of the blood cholesterol was observed. A mild acidosis seemed to accompany some of our cases of seborrheic eczema, psoriasis, acne vulgaris and urticaria.—Oscar L. Levin, and Max Kahn, *Am. Jour. Med. Sciences,* 162, 698 (1921).

✣

Test for Acetone in the Urine.—The author has worked out a simple method for quantitative determination of acetone in the urine: To 5 c. c. of the urine are added 5 drops of a saturated solution of sodium nitroprussid and then 1 c. c. of a 15 per cent solution of sodium hydroxid. The fluid turns red and then dark dregs-of-wine color as the fluid is at once neutralized by adding a few drops of concentrated acetic acid, and this tint persists for ten minutes. The test is then repeated with the urine diluted to 1:10. If the dregs-of-wine color fades out before three minutes, there is less than 0.05 per cent acetone in the fluid. The test is then repeated with dilutions of 1:5; 1:8, etc. If the tint fades out at 1:8 after three minutes, while this does not occur until the fifth minute with the 1:6 dilution, then the 1:8 dilution is the proper one. The formula is the product of the dilution figure and the acetone figure of 0.05. In this case it would be $8 \times 0.05 = 0.4$. Assuming the daily output to be 1,000 c. c., the acetone content would be 4 c. c. or 3.2 gm.—R. Scharf, *Med. Klinik* (Berlin), Sept. 4, 1921; *Jour. A. M. A.,* 77, 1691 (1921).

✣

Flocculation Tests for Syphilis.—The authors explain the reason for the difference between the response of active serum to the Wassermann test and the Sachs-Georgi test for syphilis. This they find is due merely to the difference in the salt content of the mediums. Adding a little more salt brings the response of the active serum to the same place with one technic as with the other.—H. Sachs and F. Georgi, *Med. Klinik* (Berlin), Aug. 14, 1921; *Jour. A. M. A.,* 77, 1690 (1921).

✣

Wildbolz' Auto Urine Reaction.—The authors give the results of their investigations on the Wildbolz auto urine reaction for the determination of the activity of tuberculosis. The concentrated urine of patients with active pulmonary tuberculosis (with positive tubercle bacilli findings) yielded in persons sensitive to tuberculin twenty-seven positive, and only one negative, reactions. But also with the urine of persons who did not offer the slightest evidence of tuberculosis (physicians, hospital personnel and patients with mild ills) they obtained thirty-seven positive and four negative reactions. They conclude that the auto urine reaction is caused essentially by the traumatic and chemical effects of the injected concentrated urine, and has therefore no value for the diagnosis of tuberculosis. Whether the urine of tuberculous subjects contains specific substances that, after elimination of disturbing factors (salt effect), have a diagnostic value, remains to be decided by further investigations.—G. Farago and P. Randt, *Deutsche Med. Woch. sch.,* 47, 919 (1921); *Jour. A. M. A.,* 77, 1455 (1921).

Standardizing Vaccines by Opacity Method.—The opacity method of standardizing vaccines is in Holker's opinion the most suitable for the practical work of a pathologic laboratory, in that it is simple, accurate and rapid. He independently worked out the method described by Don and Chisholm, but discarded it as not being convenient nor sufficiently accurate. He therefore worked out another method of measuring opacity which has proved not only accurate and rapid, but being a standard in itself, has had the advantage of not requiring any other standard such as a suspension of barium sulphate. This method is described in detail.—J. Holker, *Jour. Path. Bact.*, Edinburgh, 24, 419 (1921); *Jour. A. M. A.*, 77, 1604 (1921).

✣

Bacillus Proteus in Cerebrospinal Fluid in Typhus.—In both cases cited by the author, examination of bloom films for malaria parasites and spirilla or relapsing fever was negative. Agglutination tests with *B. paratyphosus*, A, B and C were completely negative. In both, a positive Weil-Felix with *B. proteus* X 19 was obtained. From the cerebrospinal fluid in each, an organism was grown which appeared to be *B. proteus*. No agglutinating serum for *B. proteus* was obtainable, and the classification of the organism is incomplete, but the tests done seem to warrant the conclusion that from a cerebrospinal fluid of two cases of typhus fever with meningeal signs, *B. proteus* has been isolated.—J. M. Anderson, *Jour. Path. Bact.*, Edinburgh, 24, 478 (1921); *Jour. A. M. A.*, 77, 1605 (1921).

✣

Fractional Analysis of the Duodenal Contents in Normal Individuals.—From observations on the fractional analyses of the duodenal contents in ten normal individuals, the authors feel justified in concluding that this method of examination presents a simple means of determining quantitatively the degree of alkalinity as well as the quantity of ferments present for several hours after the stimulation of the duodenal contents by means of a test meal. The degree of alkalinity is usually highest in the fasting state, and falls immediately after the test meal is given and then gradually rises; it bears no relation to the curve of gastric acidity. A similar effect is observed usually in regard to the ferments, the strength of one ferment being wholly independent of the other. Finally, these findings, obtained under normal conditions, appear sufficiently definite to serve as a basis for further study of pathologic changes in the duodenal contents.—Julius Friedenwald and Joseph Sindler, *Jour. A. M. A.*, 77, 1471 (1921).

✣

Colloidal Benzoin Reaction.—The authors state that further experience has confirmed the advantages of their colloidal benzoin technic as simpler than the colloidal gold test, while the findings are dependable and constant. They parallel the Wassermann reaction in neurosyphilis as a rule, and seem to be particularly instructive in the acute and subacute cases. When the findings varied from those with the Wassermann test in nonsyphilitic diseases, if there was any discrepancy it was always the Wassermann that was at fault. The reagent is a suspension of 1 gm. of benzoin resin in 10 c. c. of alcohol, set aside for two days, using only the decanted fluid. They bring the whole subject of colloidal hemolytic tests down to date.—G. Guillain, G. Laroche and P. Leschelle, *Presse Médicale*, Paris, 29, 773 (1921); *Jour. A. M. A.*, 77, 1528 (1921).

✣

Sterilization of Puncture Needles.—The author advises to use for venesection a steel needle sterilized by leaving it for an hour in chloroform containing 3 per cent paraffin. He says that the paraffin keeps the blood from sticking and the needle from rusting, while the chloroform sterilizes it effectually without affecting the temper, so that very fine needles can be used.—P. P. Levy, *Presse Médicale*, Paris, 29, 777 (1921); *Jour. A. M. A.*, 77, 1528 (1921).

✣

The Auto-Urine Test.—The author applied to tuberculosis the method of fractional analysis which he has worked out on urine, precipitating with lead acetate and then following with sodium phosphate. His tests failed to disclose any specific antigen in tuberculosis urine corresponding to the antigen like that in tuberculin. Hence he concludes that the Wildbolz auto-urine reaction cannot serve to distinguish between active and latent tuberculous processes.—M. Weisz, *Med. Klinik*, Berlin, 17, 930 (1921); *Jour. A. M. A.*, 77, 1532 (1921).

Simplified Test for Syphilis.—The author does not wait for flocculation to occur, as in the Sachs-Georgi and Meinicke tests, but gages the reaction by the turbid aspect of the fluid. This can be estimated in an hour or two, but he waits for four hours. The response harmonized remarkably with the usual syphilitic extracts (cholesterinized), diluted 1:10, and adds 0.4 c. c. of the serum to be tested; with alternating control tubes with known positive and known negative serum reactions for two-thirds of the set, as he describes.—H. Dold, *Med. Klinik*, Berlin, 17, 940 (1921); *Jour. A. M. A.*, 77, 1533 (1921).

✣

The Formalin and Sachs-Georgi Tests for Syphilis.—The author has studied the diagnostic value of two of the most recent syphilis tests, the Gate and Papacostas formalin test and the Sachs-Georgi precipitation test. In conclusion he says that the results obtained from the formalin test prove once again the futility of basing conclusions on figures derived from a small number of cases, as small series have recently been published showing complete concord between formalin and Wassermann reaction results. The technique of the test is simple, and were the results reliable, it would be an excellent method whereby the practitioner could rapidly establish a diagnosis of syphilis. But less than half of the serums giving positive Wassermann reactions shows coagulation with the formalin, and—a fact of yet greater importance—nearly 10 per cent of non-syphilitic serums give a positive result. Any claim to the reliability of the test is therefore demolished.

As regards the Sachs-Georgi test, the results obtained are distinctly promising. The technique is much simpler than that of the Wassermann reaction on account of the omission of the complement and other constituents of the hemolytic system. But this is rather more than balanced by the great difficulty of determining the presence or absence of a precipitate in many instances. A strongly positive Sachs-Georgi reaction may be taken as evidence of syphilis, but a weak reaction must at present be looked upon with suspicion because of the difficulty in distinguishing between the weakest positive reaction and the slight precipitation given by some negative serums. It appears possible, however, that the detection of the weakest positives may be made easier by modification of the antigen and by special methods of reading the results—W. N. Kingsbury, *Lancet*, Oct. 15, 1921. (D. G.)

✣

Purity of American Strains of B. Botulinus.—Nontoxic strains were isolated from 18 out of 19 so-called "strains" of B. botulinus examined. These nontoxic isolations were proved to be B. sporogenes. Isolations of B. sporogenes were made from stock "strains" of B. botulinus by four different methods, that is, by the use of anaerobic plates, simple dilution, aerobic plates with Staphylococcus aureus, and by heating in order to kill vegetative forms after the spores of B. sporogenes had been formed. The "strains" of B. botulinus examined resemble morphologically and in their action on meat mediums and milk pure cultures of B. sporogenes, except that the action of B. sporogenes is more rapid, and in some cases carried nearer to completion.—George E. Reddish, *Jour. Inf. Dis.*, 29, 120 (1921).

CONVENTIONS AND CONFERENCES

January 9-11, American Academy of Applied Dental Science, Stacey-Trent Hotel, Trenton, N. J.

January 10, West Virginia Public Health Council, Masonic Building, Charleston, W. Va.

January 16-21, Texas State Health Officers' Association, Adolphus Hotel, Dallas, Texas.

January 17, Massachusetts Association of Boards of Health, Boston, Mass.

January 18-19, American Society of Civil Engineers, 29 West 39th St., New York City.

January 24, Engineering Institute of Canada, Montreal, Canada.

February 24, Wyoming Public Health Association, Plains Hotel, Cheyenne, Wyo.

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THE WORK OF THE LEAGUE OF RED CROSS SOCIETIES' TYPHUS RESEARCH COMMISSION TO POLAND

FRANCIS W. PALFREY, M. D.
Boston, Massachusetts

Read before the Public Health Administration Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 15, 1921

TYPHUS fever has many analogies with Rocky Mountain spotted fever. Both are transmitted by body parasites; typhus fever by the body or clothing louse, and Rocky Mountain spotted fever by the tick, Dermacentor venustus. There are similarities also in their pathology and clinical features. Dr. Wolbach, in the course of the work in which he demonstrated the organism named by him Dermaeenrokenus rickettsi* in Rocky Mountain spotted fever, became impressed with the analogies between Rocky Mountain spotted fever and typhus fever, and in 1919 went to Mexico to study typhus. In typhus autopsy material obtained there he found previously undescribed organisms which strengthened his determination to continue his studies of typhus fever by methods similar to those followed in his investigation of Rocky Mountain spotted fever. Later in the same year he was invited by the League of Red Cross Societies to organize a commission to conduct such an investigation in Poland.

Accordingly, in January, 1920, Dr. Wolbach, Dr. Todd and I, with three assistants, sailed for Europe. In Paris we were joined by Mr. Bacot, the entomologist of the Lister Institute in London. From Paris we proceeded through Cologne and Berlin to Warsaw and then to Vilna. East of Berlin we experienced the unbelievably crowded state of all railway trains, which is undoubtedly an important factor in the transmission of typhus-bearing lice. In Vilna we found that the hospital in which it was planned that we should work was seriously delayed in its opening, chiefly on account of damage done to it by the Germans, who had torn out all plumbing for the metal and had done other damage in pure vandalism.

We therefore returned to Warsaw and there we were fortunate enough to make satisfactory arrangements by which we could begin work with less delay. This we owe to the cordial coöperation of the Polish authorities, especially Dr. Rajchman of the Ministry of Public Health, and to the very great services of the American Red Cross under Col. Chesley, through whose organization we obtained nurses, supplies and transportation.

Dr. Rajchman gave the commission laboratory space in the new public-health building. This building was still under

*Wolbach, S. B. *Jour Med. Research,* Boston, 1919, xli, 1.

construction, but the parts of it assigned for our use, by special work, were quickly made habitable. It was also arranged that we should assume complete control of one division of the St. Stanislaus Hospital, the chief contagious disease hospital of the city of Warsaw, then devoted entirely to typhus fever, with a normal capacity of three hundred beds. It was unfortunate that the laboratory and the hospital were both situated on the outskirts of the city and in different directions. They were separated by considerable distances from each other, from our quarters in the center of the town and from the nurses' quarters of the American Red Cross. But by the use of one and later two Ford cars and occasional ambulances we were able to get along for the period of our work.

At the hospital the arrangement was that we should be privileged to transfer to our division cases selected from other wards of the hospital and transfer them back to the Polish wards as soon as they became convalescent. It was also arranged that we should have full autopsy privileges in all fatal cases. Our decision to assume control of a division instead of observing cases in the Polish wards was reached partly for the safety of ourselves and of our nurses, since in no Polish hospital that we visited were the patients satisfactorily deloused. In fact one staff physician, two nursing sisters and a priest of the St. Stanislaus Hospital had typhus while we were there. The absence of cases in our personnel was undoubtedly due to the fact that we conducted our division as a separate hospital within a hospital and deloused every patient transferred to it.

But the arrangement had other great advantages. By having a selected number of the sickest and most typical cases concentrated under our care we had an unusual opportunity to study the clinical course of the disease. Dr. Wolbach and I have given the results of our observations in our articles on typhus fever in the *Oxford Medicine* and in the *Medical Clinics of North America* for May, 1921. While clinical study was not one of the first objects of our commission, nor is clinical description a purpose of this meeting, it may add to the clearness of what I have to say later if I give here a brief summary of our general knowledge of typhus fever as a disease.

Typhus fever has occurred throughout history in epidemics following wars and disasters. It was until nearly a century ago confused with typhoid fever, although the two diseases are of totally different pathology and have only slight superficial clinical resemblances. In 1909-10 Nicolle first proved its transmission by the body louse; this has been amply confirmed. At present it seems improbable that there is any other important means of transmission. The single bite of an infected louse will cause the disease in man; if one case appears in a louse-infested and crowded community it is likely to create an epidemic.

The incubation period from the bite of the louse to the appearance of symptoms is stated to be from eight to fourteen days. The onset of symptoms is abrupt and usually violent, with chill, feverishness and severe headache. Between the third and the seventh day the rash, an eruption of red spots scattered with more or less profusion all over the body with exception of the face, appears. After the appearance of the rash the patient continues to have high fever and is usually delirious. Patients who recover show a rather rapid improvement, with falling temperature usually between the twelfth and fourteenth days, and become convalescent. Most cases have bronchitis, and bronchopneumonia is responsible for a large proportion of the deaths. The other chief type of fatal outcome is characterized by the gradual passage into a state of stupor in spite of the disappearance of fever. Dr. Wolbach's autopsy findings tended to show that this stupor may be connected with

lesions of typhus fever in the small blood vessels of the brain.

The mortality of typhus fever varies in different epidemics from 50 per cent down to 5 per cent. The mortality increases according to the age of patients, from slight below the age of twenty, to very high above the age of forty. One attack gives permanent immunity. No method of specific immunization or specific treatment has been established.

In the administration of our division we had practical experience in carrying out preventive measures. The method which we followed I have described in the *Modern Hospital* for April, 1921. To overcome the danger of infection of personnel which has been so great in most typhus hospitals, the chief necessity is thorough delousing of all patients before admission to wards and corridors where non-immune personnel work. And the difficulty of this lies not in lack of proper methods; practically the whole difficulty lies in the danger that the process of delousing may be carelessly or perfunctorily performed. All hospitals that we visited had adequate systems of delousing outlined in rules, but the carrying out of these was left to irresponsible orderlies under little or no supervision. The process so applied, in my opinion, did more harm than good, since it tended to create a sense of security where no security existed. The delousing process should be under almost constant supervision by a responsible officer. If the admission delousing is complete and the presence of lice from other sources is prevented, particularly by exclusion of friends of patients, delousing and inspection of orderlies, and inspection of returned laundry, there is no reason why typhus wards should not be absolutely safe, as I am convinced ours were. Two points of practical detail may be mentioned. First, it must not be concluded, as it was by some of our Polish friends, that since the pubic louse does not transmit typhus the pubic region can be neglected. We frequently found body lice in the hair of the pubic and anal regions, and therefore were careful to clip or shave as carefully there as elsewhere. Second, we found that from the layers of dandruff on the scalps of certain patients lice could be combed even after the most careful washing, and that water prevented the penetration of the kerosene that followed. We therefore excluded the scalp from the washing, depending only on clipping the hair and using generous applications of light oil, and covering with a bandage. Head lice are closely related to body lice, and have been proved to be capable of transmitting typhus infection.

The method of delousing typhus patients is not complicated. In the delousing room the patient is stripped of all clothing while still on the stretcher before he is transferred to the white drained table on which he is to be clipped and washed. The clothing, still on the stretcher, is then taken back through the door of entrance to the steam sterilizer. On the delousing table all head and body hairs thick enough to conceal lice or ova are clipped below the ovum-bearing length, and the clippings are carefully collected so as to be either boiled or burned. The body with the exception of the scalp is then bathed with soap and water and dried. There is some misconception as to the purpose of the bathing. Soap and water do not kill lice; they only remove them mechanically, and if the clipping has not been thorough lice may remain alive among the hairs. Therefore after the bathing and drying, the scalp, axillae, pubic and anal regions should be treated with kerosene or other light oil, and the same should be rubbed lightly over the whole body. The patient is then transferred to a clean stretcher, given a head-cap and night shirt, and taken to his bed. The table and floor of the delousing room should be gone over with kerosene cloths and mops after each patient. The delousing of each patient should be done by two nurses or orderlies; these should be typhus-immunes if

possible, and in any case should wear louse proof gowns and rubber gloves.

In the wards, precautions are to be taken against the entrance of lice, on the persons of orderlies or visitors, in returned laundry, etc. Furthermore, even though the wards are believed to be louse free, all personnel should wear louse proof gowns, sterilized by steam or naphthalene after each wearing, and nurses should confine their hair by a headdress.

But the chief purpose of the commission was to study the pathology and transmission of typhus fever, with the object of identifying the etiological factor. Dr. Wolbach was able to perform 38 extremely complete autopsies on clinically unquestionable typhus cases, all within a few hours after death. From these and by experimental work it was established: First, that, as was reported by Fraenkel in 1914 but had not been universally recognized outside of German medical circles, typhus fever has a distinctive pathology manifested by specific microscopic lesions of the blood vessels. These are most numerous in the vessels of the skin and of the central nervous system, but are present less conspicuously in many other organs and tissues of the body, notably in the heart.

The lesion is to be described as an endangitis. It begins as a proliferative reaction of the endothelium, which results in an accumulation of swollen cells which then undergo degeneration and necrosis. Thrombosis follows, and may cause complete occlusion of the vessel. In capillaries, the initial reaction may result in destruction of continuity of the vessel wall, allowing extravasation of blood as is seen in the petechiae. In the brain these lesions produce minute areas of necrosis. While the characteristic pathology consists of extremely numerous minute vascular lesions, occasionally larger arteries are occluded by thrombosis. Also, and more frequently, thrombosis originating in small vessels of the skin may extend centripetally and result in smaller or larger areas of necrosis of skin and subcutaneous tissue—the so-called typhus gangrene.

These same lesions were also demonstrated in certain instances in skin spots excised during life, in non-fatal cases. So characteristic are the microscopic appearances, that where conclusive proof of the existence of typhus fever is necessary, histologic examination of an excised skin lesion may be done to establish the diagnosis. The presence of these lesions in experimental animals should be required before a transmission experiment is considered positive.

Second: In the endothelial cells involved in these lesions, when stained by Giemsa's method, organisms were found not previously described in human tissues, except by Wolbach and Todd* from the Mexican material, but consistent with those known as rickettsia prowazeki, described by Ricketts, von Provazek, da Rocha Lima and others, in typhus-bearing lice. These organisms are extremely minute. They have the appearance of paired ovoid bacteria, or short bipolar staining rods. They are most easily demonstrable as pairs, 1 to 1.5 microns long, usually surrounded by an unstained space, singly or in clumps. Larger collections of more minute paired forms, may be found filling endothelial cells. They are best shown by Giemsa's stain, taking ordinary stains with difficulty; they are decolorized by Gram's method. As with the organism of Rocky Mountain spotted fever, it has not been possible to cultivate them.

Third: By inoculation experiments, using rather large intraperitoneal injections of human patients' blood, the disease was produced in monkeys and in guinea pigs; and was proved, not only by the occurrence of elevated temperatures after an incubation period, but also by demonstration of the specific vascular lesions in the animals' brains. The finding of these lesions was required in all

*Wolbach, S. B., and Todd, J. L.; *Ann. de l'Inst. Pasteur*, Par., 1920, xxxiv, 153.

results that were considered positive. Examination of an animal's brain by frozen section was found to be a satisfactory time saving method.

Fourth: For investigations involving lice the commission prepared itself by carrying with it, from America and from England, strains of lice free from rickettsia of any kind, and fed only on the persons of members of the commission. Throughout the period of the work the lice fed only on members of the commission remained free from rickettsia, with the exception that one member, Mr. Bacot, developed trench fever, and after that his lice showed the rickettsia pediculi of trench fever, and were therefore not used.

Fifth: Extensive louse feeding experiments were conducted by Dr. Todd. From these it is shown that lice previously free from rickettsia when fed upon patients with typhus fever, particularly in the first ten days of their disease, in a large proportion of instances acquire organisms coinciding with descriptions of rickettsia prowazeki.

In dissecting lice infected with these bodies, it is evident even under low magnification that many cells of the lining of the gut are enormously enlarged. On higher magnification, it is seen that this enlargement is due to distention by myriads of the organisms which I am about to describe. This swelling of the gut cells in lice containing rickettsia prowazeki is important, since it constitutes one of the chief differences by which rickettsia prowazeki are distinguished from rickettsia pediculi of trench fever. With rickettsia prowazeki there is great swelling of gut cells, but the organisms remain intracellular; with rickettsia pediculi there is little swelling of gut cells, and the organisms are largely extracellular.

On high magnification, the organisms in these swollen cells, examined in sections or in smears, resemble those organisms found in the lesions of typhus in man and in animals, but present a distinctly greater variation in size and morphology, ranging from larger bacillary or even filamentous forms to exceedingly minute paired coccoid bodies. A definite cycle of development is suggested.

Sixth: Experiments were made in which the intestinal tracts of lice thus infected with rickettsia prowazeki were injected into animals and resulted in typhus infection in those animals, which was proved histologically. Moreover, a study of the protocols warrants the conclusion that the experimental transmission of typhus, by the method of injecting the intestinal tracts of lice fed on typhus patients into animals, will succeed only when these lice contain rickettsia prowazeki.

A detailed report of the work of the commission is to be published in a volume now in press.

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THE SITUATION ABROAD AS REGARDS TYPHUS FEVER AND OTHER EPIDEMIC DISEASES AND THE POSSIBILITY OF THEIR IMPORTATION INTO THE UNITED STATES

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Read before the Public Health Administration Section of the American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 15, 1921

BECAUSE of the lack of reliable morbidity reports from Eastern and Southeastern Europe, it is not possible to discuss this problem in an entirely satisfactory manner. For the past two or three years there has existed in Eastern and Southeastern Europe a sanitary situation most menacing to the United States. As bad as the situation was, however, it probably has been

exaggerated in the telling, as illustrated by the statement of one of the Public Health Service officers stationed at the American Consulate at Danzig, who said that the accounts of epidemic disease in Eastern Europe, more especially in Russia, were limited only by the "imagination of the narrator and the credulity of his audience."

While the western and Scandinavian countries of Europe are comparatively free from pronounced foci of typhus, cholera or other epidemic diseases, it is a fact that during the past summer, a number of typhus cases have been reported from Czecho-Slovakia, Hungary, Jugo-Slavia, Poland, and the Balkans, and a few scattered foci appeared in Italy, mostly due to recent arrivals from Czecho-Slovakia or Hungary.

Available reports indicate an improvement in the typhus situation in Europe and it seems very probable from the epidemiology of the disease that this is so, if for no other reason than that the susceptible material will have been exhausted. The Public Health Service despite this probability is proceeding on the assumption that in the winter of 1921-22 there may be an increase in typhus infection in Europe and is continuing the enforcement of sanitary safeguards, applicable at the foreign ports of embarkation as well as at the quarantine stations of United States ports.

Knowing of the general sanitary breakdown in Central Europe coupled with famine conditions and the prevalence of typhus infection in many camps and military prisons just before and at the time of cessation of hostilities, the Service has been apprehensive of the spread of typhus from certain areas of Europe to the United States upon resumption of emigration, which would begin shortly after the armistice. Restrictions to travel during active warfare naturally resulted in a limitation of the disease, although the exchange of prisoners and the movement of armed forces did disseminate some infection. On the cessation of hostilities and the resumption of commercial intercourse throughout Europe, typhus increased both in the number of cases and infected localities, and following this, the reopening of emigration to America, more especially in the winter of 1920-21, markedly increased the danger of the introduction of the infection into the United States.

As just stated, this condition of affairs was foreseen, and at the earliest opportunity we sent medical officers to Europe for the purpose of investigation and to advise preparation for the application of preventive measures at European ports of departure whenever trans-Atlantic travel should be resumed, but in many instances steamship companies failed to heed the warning of medical officers to be prepared, and there resulted an unnecessary delay in the installation of appropriate disinfecting facilities at various European ports of embarkation. In the spring of 1920, one of the senior officers of the Service was assigned to the station at Paris, France, as general inspector of Service activities in Europe, and as the occasion arose officers were assigned to the ports of Danzig, Rotterdam, Antwerp, Cherbourg, Brest, Barcelona, Hamburg, Havre and Athens (Piræus), in addition to those officers who had been stationed for a number of years past at various Italian ports. Later, representatives of the Service were assigned to the Scandinavian ports, to Trieste and Constantinople, and eventually to the English ports of Liverpool, London and Southampton.

The occurrence of typhus on several trans-Atlantic vessels in the summer of 1920 was rather suggestive that a sharp increase of the infection would take place during the following winter, and this proved to be the case. As the winter progressed there was an increase of typhus infection on trans-Atlantic vessels coinciding with a corresponding increase in the number of heavily vermin-infested immigrants arriving on vessels at ports of the United States on the Atlantic sea-

board. There was only a partially satisfactory enforcement of precautionary measures at European ports because of the lack of equipment and facilities that should have been provided by steamship companies or local governments, and to protect our own people instructions were issued early in January, 1921, to medical officers attached to the consulates that bills of health should not be issued to vessels unless typhus preventive measures should have been carried out to their satisfaction. Quarantine officers at ports of the United States were instructed to exercise special care in the inspection of incoming vessels, and to hold in detention for twelve days after delousing measures, the personnel of any vessel arriving from a European port without a bill of health. Furthermore, detention of emigrants for twelve days was carried out at the port of embarkation against travelers from known infected areas.

Although at ports of the United States typhus was detected on ten vessels, it is noteworthy that with the exception of two vessels hailing from Trieste no secondary cases occurred on infected vessels, and it seems reasonably fair to attribute this condition of affairs to the preventive measures carried out by the Service at all the other ports except Trieste, where the resumption of emigration was so unexpected that no Service officer had been assigned and consequently no preventive measures had even been attempted. Upon arrival, one of these vessels, the "San Guisto," had six cases, and twenty more developed during the detention of contacts at the New York Quarantine Station. On arrival at New York the other vessel, the "President Wilson," had four cases of typhus on board, and seventeen subsequently developed amongst the detained personnel. There has never been a doubt in our minds as to the value of the application of preventive measures at the foreign port of departure, but if there ever had been the experience of the past year with respect to the prevention of the introduction of typhus would amply serve to dissipate it.

What the typhus situation may develop in the coming winter season, 1921-22, is more or less speculative, but it can be confidently stated that the force of Public Health Service officers attached to the American Consulates at European ports will amply serve to supervise such precautionary measures as will protect our country against the spread of typhus.

For many years a very large number of emigrants from Central Europe have arrived at the port of entry of the United States in an inexcusably unkempt condition and a very large percentage of them were infected with vermin. While pediculosis is of no special consequence in the absence of typhus, greater care should be exercised with respect to the personal cleanliness of emigrants departing from Europe for the United States as a matter of decency, personal hygiene and self respect, and it is believed that the experience of the past year will have a very beneficial effect, in that steamship companies have established, and presumably will retain in operation at European ports, adequate facilities for bathing and disinfecting prospective emigrants. There is unfortunately a high percentage of vermin infestation reported amongst the foreign element in our larger cities which renders such precaution necessary.

The cholera situation has not been alarming, although it is a subject that has been given consideration. Many rumors have been circulated as to the prevalence of a cholera epidemic in Eastern Europe and it seems probable that there has been a very extensive spread of the infection in Russia; but it appears that the advance to the westward has been stayed, at least in part, by the operation of sanitary camps between the clean and infected countries. Several cases of cholera have been noted at sanitary stations on the Russian border of Poland and some cases in Lithuania during the past spring, chiefly in the neighborhood of Kovno.

Although the average number of aliens detained at the Danzig camp exceeds seven thousand per month, most of them coming from Russia, Poland and Galicia, there has never been a case of cholera observed in the emigrant camp. Should cholera, however, extend to Western Europe or to the seaports, we have confidence in the effectiveness of the measures applied to prevent the ingress of cholera from Italy in 1911, when examinations were performed both at the European port of embarkation and the American port of arrival, and shall at once reinstitute them. It is most satisfactory to be able to say, however, that as yet no case of cholera, nor suspected case, has been observed on any vessels from Europe during the year 1921.

From time to time plague infection has been reported from various ports of Europe, and in order to prevent the extension of the infection to the United States, vessels are being fumigated throughout, under the supervision of Service officers, either at the port of departure or upon arrival at a port of the United States.

While smallpox is reported in various districts of Europe there have been no cases reported during the past summer on trans-Atlantic vessels which, in so far as the emigrant is concerned, is without doubt due to our routine custom of requiring vaccination of persons embarking at European ports, unless they have previously had smallpox or have been recently and successfully vaccinated against the disease.

EUROPEAN HEALTH CONDITIONS

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IN considering the health problems with which the nations of Europe are attempting to deal, it is first of all necessary to realize the underlying social and economic conditions which render these problems so grave and so difficult of solution. War in the past has always left behind it a legacy of epidemic disease and so far as direct infection of the civilian from the military population is concerned, the great conflict of 1914 to 1918 stands out in sharp contrast to its predecessors; for on the western front at least, the sanitation of the armies was not a menace but an inspiration to civilian health authorities. Social and economic disintegration, however, which has followed from the titanic struggle, has given rise to health problems of the gravest magnitude.

Belgium is perhaps the most normal of all the warring countries; but nowhere in Europe, even among the neutral nations, is there an approach to the relative stability which exists in the United States to-day. England is staggering under an almost overwhelming burden of taxation which is leading to a redistribution of the great landed estates almost as far-reaching as that which has taken place in Russia. France is making notable progress in many directions, but even last summer I travelled over mile after mile of territory which was still a waste of shell holes and barbed wire, with unexploded shells and hand grenades causing their weekly quota of accidents. Germany is working tremendously hard, on an almost minimal level of existence so far as the mass of the population is concerned; her industries are flourishing and she is making and selling goods at a feverish rate. Some of the most competent observers, however, feel her government finance is in such a state as seriously to threaten

national bankruptcy, the results of which would be catastrophic with regard to the entire European situation.

Passing to the east, we find along the frontier of chaotic Russia a line of new and more or less unstable little states stretching from the Baltic to the Black Sea, Finland, Esthonia, Latvia, Lithuania, Poland, Czecho-Slovakia, and Hungary, with Roumania, Jugo-Slavia, Bulgaria, and Greece still further to the south. Of the new states, Czecho-Slovakia is rich in natural resources and relatively stable and prosperous, and Poland is recovering in a remarkable degree from her succession of devastating wars which ended only last autumn. The future of the Baltic States is, however, more than doubtful and Hungary is bitter and dissatisfied and constantly on the verge of war with all her neighbors. The new boundaries have created almost inconceivable barriers to the normal flow of commerce and the vagaries of exchange in themselves offer appalling difficulties to the development of economic life.

The problems of post-war reconstruction are found in their most devastating complexity in the new republic of Austria, which during six and a half centuries of Hapsburg rule grew to be the second largest state of Europe in surface area and the third in population, with Vienna its capital, as the financial, scientific and artistic capital of the whole of eastern Europe.

By the treaty of St. Germain, the wheel of time was turned backward and the mighty but artificial structure disintegrated into its component parts. Czech and Magyar regained their independence, Pole and Jugo-Slav and Italian gravitated to the normal centers of their racial loyalty. Vienna was reduced to the position of the capital of a small and helpless state deprived of its most important industrial resources, the mines of Bohemia, the wheat lands of Hungary, and the pastures of Jugo-Slavia. It became a city of 2,000,000 inhabitants in a nation of 6,000,000, producing only one-fifth of its necessary food supply, poor in essential raw materials, almost without coal, economically dependent on hostile neighboring states, burdened with an army of civil servants and a tremendous load of debts inherited from the ancient empire. The Austrian crown when I was last in Vienna was worth less than one-tenth of a cent, and the natural milk supply of the city, which in 1913 amounted to 850,000 liters, was barely 60,000 liters a day. The cost of living had gone up about one hundred times and the wages of the workers less than fifty times, while among the professional classes it had not risen more than perhaps four or five times. A certain well known professor in the University of Vienna who has eight children was receiving the magnificent salary of ten thousand kronen a month ($10.00) which was nearly half enough to support his family. He is exceedingly fortunate, for his assistant, a man who has served the university for sixteen years, received seventeen hundred kronen a month. The average salary in the state health department was twenty-five hundred kronen a month, about $2.50. There were over three thousand school teachers in Vienna whose income was less than three thousand kronen a month.

The wholesale destruction of the population has been prevented solely by the work of the foreign relief organizations, the American Relief Administration, the American Red Cross, and the Anglo-American Mission of the Society of Friends in the forefront. The American Relief Administraion is to-day feeding four hundred thousand children out of about six hundred thousand in Austria. But the situation among the members of the professional class is desperate. They are living from hand to mouth and from day to day by selling their books and pictures, and when they are all gone no one knows what will happen.

In view of such facts as these, the only wonder is that the public-health sit-

uation is not worse than it is, for after all, the economic factor is a vital one in every public-health problem with which we are called upon to deal. Yet in spite of post-war disorganization, Europe, outside of Russia, has been spared the added horrors of epidemic disease on the great scale which has followed upon earlier conflicts.

A year ago there seemed serious danger of an outbreak of typhus which would threaten the safety of the whole world. With the breakdown of the Russian government, typhus and relapsing fever assumed the gravest proportions in that unhappy country, and with the debacle of the armies of Petlura and Denikin infected refugees poured over the Polish frontier. Of the twenty thousand men, women and children who entered Poland after Denikin's defeat, eight thousand required hospital treatment, six thousand of them for typhus and relapsing fever. The disease naturally spread in Poland itself.

In 1920 there were 168,097 cases of typhus registered in Poland with 22,575 deaths, and 7,185 cases of relapsing fever with 295 deaths. The Polish government, with the assistance of the Epidemic Commission of the League of Nations, has conducted a magnificent struggle against this disease and has organized an anti-typhus campaign of which any nation in the world might be proud. Before the last Bolshevik invasion, the Poles had succeeded in equipping 92 epidemic hospitals with 5,870 beds. Most of them were destroyed by the Bolsheviks a year ago but by April the Polish government had again equipped 117 hospitals with 7,625 beds and had in operation 392 field disinfecting units operating in different parts of the infected region, while two great quarantine stations had been created at Baranovicze and Rowno, where the returning refugees and repatriated prisoners were disinfected on their return from Russia.

The cases of typhus reported in January, 1921, had fallen to seven thousand as compared with thirty-two thousand in January, 1920, while during the past summer the epidemic hospitals were occupied largely by malaria cases instead of the typhus and relapsing fever which filled them when I visited the area last spring.

The Polish government and the Epidemic Commission of the League of Nations and the Hebrew Joint Distribution Commission are devoting themselves to the installation of village baths and the supply of coal and fuel as the most practical measures in a permanent anti-typhus campaign. For the present the menace of typhus has been warded off, and cholera which has also been seriously prevalent in Russia has been kept under complete control, only five definitely diagnosed cases having occurred at Baranovicze.

It is the normal public-health problems of infant mortality and tuberculosis, enormously accentuated by post-war conditions, which to-day constitute the most outstanding challenge to the European health administrator. To take the most extreme cases, examinations made a year ago in Vienna showed nine-tenths of the children between one and six years of age to be in some degree undernourished and one-third to be suffering from rickets, while among children of school age over 40 per cent were undernourished. The tuberculosis death-rate in Vienna increased from 286 in 1914 to 490 in 1919, and Mr. Knud Stouman estimates that in the eleven newly formed countries of central Europe, the tuberculosis death-rate for all ages reaches between three hundred and six hundred per one hundred thousand, which indicates a death toll of some four hundred thousand per year.

It is most encouraging to know, however, the success with which these challenges are being met through the help of foreign relief organizations and the national health departments of each country. Even in the area represented by the present republic of Austria, where the excess of births over deaths amounting to 35,000 in 1914 was changed to

an excess of deaths over births of 71,000 in 1918, there were only fourteen thousand more deaths than births in 1919. Extensive infant welfare campaigns are being carried out in Roumania under the auspices of the Prince Mercea Society, and in Serbia under the child welfare department of the government, while Czecho-Slovakia, Italy and Belgium also exhibit notable examples of constructive work.

Even in Russia the Soviet government has at least an official policy of the broadest kind in regard to public-health education. Its official statements announce that public-health education has been always considered as one of its primary functions; that up to the end of the year 1920 more than fifteen million leaflets, about one million brochures, and eight hundred thousand posters have been distributed; that in each of the thirteen guberneal cities, health museums have been opened, with twenty-six permanent exhibits in the same number of district cities, seventeen traveling exhibits in railroad cars and seven exhibits which are moved on highways for use in places where there is no railroad; that sixty thousand lectures have been given with an attendance of over six million and that health weeks have been organized in different sections of the country with wonderful results.

The Soviet government enjoys certain advantages in this line as indicated by the statement that: "Local support and interest have been preserved in the public through the creation of local committees on the public health in which participation has been made compulsory."

It is to Great Britain that we must turn for perhaps the broadest and most enlightened system of modern public health to be found anywhere in the world. In the child welfare field it will be remembered that the government undertakes to pay one-half of the approved expenditures incurred locally for the salaries and expenses of inspectors of midwives, of health visitors and nurses, for medical aid in pregnancy and during confinement for necessitous women, for the maintenance of infant welfare centers, for the cost of general instruction in the hygiene of maternity and childhood, for hospital treatment for necessitous women and for children under five years of age found to need in-patient treatment, for the cost of food provided for expectant mothers and nursing mothers and children under five years of age in necessitous cases, and even for experimental work for the health of expectant mothers and of infants and children under five years of age.

The result of this enlightened policy has been the reduction of the infant mortality rate for England and Wales to eighty deaths under one year per thousand living births for 1920, as against eighty-nine for the previous year, and one hundred and eight for 1913. Similar provision is made by the national government for the payment of one-half of the cost of local tuberculosis schemes, including the appointment of whole time tuberculosis officers, dispensaries, residential institutions, and plans for follow-up and after care. Last summer Sir George Newman reported that England and Wales had three hundred and forty-one tuberculosis officers, four hundred and twelve tuberculosis dispensaries, and eighteen thousand beds for tuberculosis patients in sanatoria and hospitals, with thirty-five hundred more beds in preparation. The number of notified cases was 73,332 in 1920, with 42,545 deaths.

In connection with venereal disease, opinion in Great Britain is averse to notification and compulsory treatment, but remarkable progress has been made along voluntary lines in the better education of practitioners and students in the diagnosis and treatment of venereal disease, in the provision of free laboratory facilities for diagnosis, in the establishment of treatment centers and the free supply of arsenobenzol compounds, and in popular education. In 1920 the public treatment centers of England and

Wales reported 100,632 new patients, with 1,460,541 clinic visits, a most remarkable record.

Among the important special events of the spring and summer in Europe were the regional conference on venereal disease held under the auspices of the League of Red Cross Societies at Copenhagen, May 20 to 25, and the meeting of the International Union against Tuberculosis in London at the end of July.

The Copenhagen conference included the seven northern European countries, Denmark, England, Finland, Germany, Holland, Norway, and Sweden, which are among the most advanced nations of the world in regard to this subject. Germany and Finland are abolishing the regulation of prostitution in the immediate future, a step which has already been taken by all the other countries concerned. Denmark and Sweden are the pioneer nations in the organization of medical treatment of venereal disease. Universal free treatment was recognized as a principle in Denmark in 1790, and Sweden introduced the system of anonymous notification in 1817. In both countries reporting is now by number and the patient must continue under treatment until cured on penalty of a report to the health authorities of the name of the delinquent; and these laws are not merely placed on the statute books, as in this country, but are really enforced.

Hospital facilities and dispensary facilities are freely provided. Copenhagen, for example, has four hundred hospital beds for venereal cases, or one bed for two thousand population, and quack treatment in the Scandinavian countries is almost unknown, nine-tenths of the cases being treated not only by physicians but by qualified specialists.

In the educational field the Ministry of Health of Great Britain is coöperating with the National Council for Combating Venereal Disease, which spent twenty-five thousand dollars on newspaper advertising alone in the year ending last March, and received nearly thirty-five thousand letters of inquiry as a direct result.

As to sex education in the elementary schools, opinion in England is on the whole averse, but in Sweden, where education does not cease at fourteen but continues up to the age of sixteen, a royal commission has recently presented an admirable report recommending an extensive and detailed system of sex education in the higher grades.

The meeting of the International Union against Tuberculosis was chiefly notable for a scholarly address by Dr. Calmette on the principles underlying the control of tuberculosis and for an admirable exposition by Sir George Newman of the principles underlying the practical control of this disease. Dr. Calmette strongly emphasized the difference between the acute and highly communicable form of tuberculosis that occurs in children and among races that have not been exposed to this infection, and the comparatively mild form which occurs in the ordinary adult population which is largely protected by immunity acquired in childhood. In the important series of excursions arranged by and in connection with the meeting of the International Union, many of us were particularly interested in the industrial colony for the convalescent tuberculous at Papworth Hall in Cambridgeshire, where the patients pass from the hospital to a group of one man chalets for sanitarium treatment, then to hostels where they begin to learn a trade, and finally to normal family life in the village community adjoining, where the recovered patients earn a large share or the whole of their living in the wide group of industries maintained for the colony.

It is impossible to allude even in the briefest way to the public-health situation in Europe without reference to the organization, after many difficulties and tribulations, of the Health Committee of the League of Nations, which promises

to play a most important part in the health situation in the future.

When the Covenant of the League of Nations was first drafted, it was realized that one of the many important tasks of the new machinery of international coöperation to be created was the promotion of the cause of public health. The need for an effective agency in this field, to assist in the standardization of vital statistics, in the collection and dissemination of information in regard to the prevalence of epidemic disease, in the development of port sanitation, in the negotiation of international sanitary agreements and in dealing with public-health emergencies of international importance was obviously an urgent one.

The Office International d'Hygiene Publique in Paris, operating under the convention of Rome drawn up in 1907 was well equipped from a statutory standpoint to fulfill many of these functions, but the financial resources of the organization are wholly inadequate for the effective exercise of any of them. The Covenant, therefore, constructed its new international health organization upon the foundation of the existing Office which was to serve as the general committee of the new organization and to appoint six of the thirteen members of the standing committee of the League of Nations. The advantages of the plan proposed were so obvious that it was approved by all public-health workers without reserve and was to have been put into execution last June.

The plan for formal coöperation proposed in the Covenant required certain minor modifications in the convention of Rome, and the United States, in pursuance of its unfortunate policy of blocking the work of the League of Nations in every possible manner, refused (as one of the signatories of the convention of Rome) to permit these modifications to be made.

For a time it seemed as though the whole ideal of an effective international health organization must be abandoned. Technicalities have, however, happily proved powerless to prevent an understanding, demanded by the common sense and mutual good feeling of all the forces vitally concerned. On the initiative of a preliminary conference of certain members of the proposed new health committee of the League held in Paris on May 5, the Council of the League appointed as permanent health secretary, Dr. Rajchman, the brilliant chief of the Polish Health Service, and named a provisional health committee of members who were to serve in their individual professional capacity but who were at the same time so selected as to include all the factors to have been represented on the committee projected in the Covenant.

This provisional health committee which included among its thirteen members nine of the most influential members of the committee of the Paris Office, displayed a most admirable spirit of coöperation and finally succeeded in working out a plan by which practically complete coöperation will in effect be secured without alterations in the convention of Rome, and the committee proceeded at once to plan for the organization in the secretariat at Geneva of a much needed international service of epidemic intelligence and sanitary statistics and for the continuance of the work of the anti-epidemic commission against typhus in Poland.

Finally, if I may be permitted, I should like to say a word in regard to the work of the League of Red Cross Societies with which I, myself, was connected while in Europe. The League of Red Cross Societies was established on the initiative of Mr. Henry P. Davison of the American Red Cross, with the primary objective of developing the Red Cross Societies of the world as continuing and constructive forces in the public-health campaign. I need not emphasize here the need for an effective mobilization of an intelligent public sentiment in behalf of the modern public-health campaign, and I think most of us have felt that if gen-

eral health propaganda is to reach a maximum of effectiveness it must be directed toward the organization throughout our cities and towns of permanent and active committees of public-spirited citizens devoted to the support of official agencies and the enlisting of public support for an active participation in this work.

No body seems, theoretically, so well fitted to carry out such an organized campaign as the Red Cross, free from political and sectarian influence of any kind, world wide in its organization, and of vast potential membership. From the Red Cross side it is equally clear that unless the organization is to relapse into something approximating its prewar condition, a definite and continuing objective is essential, for neither the care of disabled soldiers nor the preparation for disaster relief, admirable and essential as these two aims may be, can furnish the inspiration for a great and growing organization.

The objective of the League of Red Cross Societies is, then, to develop the national Red Cross societies from war relief agencies to constructive health forces in normal peace time. The task is not a simple one, and the lines of development of the League itself were by no means clear when it was established two years ago, but we believe that to-day the League is organized on a modest but effective basis for service of this kind.

The Red Cross Societies of Canada and Great Britain, of Italy, Belgium and Czecho-Slovakia are already more or less definitely committed to a broad and constructive program of education and organization for community health betterment, and the interest in Europe is so great that the permanent existence of the League of Red Cross Societies after the present American funds are exhausted is now practically assured. We may hope and believe that in many countries the great Ninth Crusade which we preach to-day against preventable disease will secure through the agency of the Red Cross the widespread public support which alone is necessary in order to secure the brilliant victories within our reach.

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Child Welfare. *The Annals of the American Academy of Political and Social Science, Nov., 1921, Vol. XCVIII, No. 187. Editor in charge, James H. S. Bossard.*

This volume is one of the comprehensive symposia treating single great socio-economic problems which we have learned to expect from the *Annals of the American Academy.* Although its editor apologizes for the omission of certain subjects from the discussions, such as recreation, the volume seems remarkably complete in its emphasis upon the fundamental principles which Miss Lathrop restates in her own paper, and which have come to be widely accepted as the classic "standards of child welfare" of the Children's Bureau.

Dividing the field into two main parts, "Positive Welfare for All Children" and "Problems and Programs Involving Special Groups of Children," the editors have put health foremost among the positive factors, treating it under two main heads, "Conservation of Life and Health" and "The Mental Hygiene Movement." Contributors to the first of these groupings are Dr. R. A. Bolt, on infant mortality; Dr. Ellen C. Potter, on community organization for child hygiene; Miss Harriet Leete, on positive health; Dr. E. V. McCollum, on nutritional problems, and Edward T. Hartman, on oral hygiene. Under mental hygiene, Drs. Leonard Blumgart, William A. White, Jessie Taft, and Frederic H. Knight discuss various problems of normal and abnormal childhood and adolescence from the psychiatric and psychoanalytic points of view.

K. M. G.

THE PREVENTION OF TUBERCULOSIS BASED ON THE RELATION OF TUBERCULOSIS IN INFANCY AND CHILDHOOD TO TUBERCULOSIS IN ADULT LIFE

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Read before the Child Hygiene Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 17, 1921.

AVAILABLE data can hardly warrant an extreme position on the dictum that manifest, adult, human tuberculosis, particularly of the lungs, is the fruition of an infection acquired in childhood. Against the familiar facts that most city children become infected, that infection confers an immunity to reinfection, that infection is almost habitually notoriously persistent, and that primary outbreaks of clinical tuberculosis can frequently and with unexceptionable proof be shown to have emerged from a background of years-old infection, can be opposed the equally well-authenticated circumstances that tuberculo-immunity is never more than relative, that it declines as lesion becomes more sclerotic and, therefore, less susceptible to activation, that tuberculous infection (lesion) is not necessarily permanent, that both experimental and clinical observation prove that lesion may become sterile and thoroughly eradicated, that in this event immunity disappears, that the remarkable divergence of localization of pulmonary infection and disease suggests that the more peripheral lesions of adults represent reinfections from without if we would hold to the inhalation concept of lung infection, and, finally, that all animal experimentation proves, not that infected immunes cannot be reinfected, but that the results of reinfection are a modified tuberculosis, more localized, more chronic, yet on occasion still very protracted, as compared with the course of virulent infection induced in a nonimmune.

Estimates, then, of what proportion of adults fall ill from postpuerile infection and what ratio from childhood exposure are usually founded on bias and imagination. We have no way of accumulating the evidence that will give them scientific weight. No one has yet kept careful records, from infancy to and through adolescence, of the ups and downs, the appearance, disappearance and reappearance of the Pirquet reaction, that index of infection, in more than ten of the millions of infected children. It may be that for longer or shorter periods we would find that a large proportion would exhibit nonreactivity, and therefore noninfection, where reaction and infection had been shown before; and further, that many of these would later again give the test of infection, in their case, reinfection. What little has been done in the way of prolonged and continued observation of the response of the individual child to infection tests—and it is little enough—has been concerned with clinic children, most of whom were under observation for an infection which had become so well established, had developed to such a point, that illness or abnormality was noticeable; and we must admit that the possibilities of the subsequent course of infection in these children would be quite different from those of the very slight and presumably transient infections that might follow the almost negligible exposures which many others experienced.

But all this is speculation, even though it attempts to take into account compelling consequences of scientific observation and social and family relations; and would indicate, also, only one or two of

the many wide gaps of knowledge which must be filled in before we may become too dogmatic about the obligate development of adult tuberculosis from childhood infection.

Yet, that childhood infections are prolific breeders of adult tuberculosis cannot be denied. Anyone who comes in contact with many adult consumptives needs no better evidence of this fact than good and thorough histories, which may be pieced together after adroit cross-examination of the patients. Scores of these will satisfy every requirement laid down by the most uncompromising proponent of the puerile genesis of adult disease, and physical examination as it brings to light anatomic evidences of hidden, always silent and never-suspected residua, will not infrequently clinch past history.

So much seems incontrovertible. The limitations of time forbid the arrangement of reasons which urge belief in the truth of another proposition which is pertinent to my subject, the proposition that tuberculous infection, once established, responds to the tissue activities which are set in motion by all events which enter into human experience; or, more concretely expressed, that factors of environment and inheritance, through their effects on the tissues of the body, and thus on tuberculous lesions which the latter environ, exert a determining influence on the course of infection. Under their interplay, combination and balance, infection advances and retreats, comes to light as clinical disease or is dampened into inactivity or smoulders in obscurity, for longer or shorter periods, indolently or fulminantly, continuously or haltingly. Since the wellsprings of inherited factors are largely beyond our control, these will receive scant attention; their effects are, moreover, modifiable by environmental factors. Therefore, within the short compass of this paper I wish merely to enumerate a very few of many measures which would promise a reduction of that adult tuberculosis morbidity which develops from childhood infection a few measures which may seem practicable of application.

These measures would take the incident of infection for granted and proceed with the sole purpose of preventing at any time its development, or restricting this to a minimum. It is fair to assume that if all infection were kept thoroughly inactive throughout the years of childhood it would become so sclerotic and well invested that practically no adult disease would develop from it and that, which is more sigificant, much more of it would completely die out.

It should hardly be necessary to point out that, taking any population or portion of it in the mass, whatever tuberculosis exists in it will respond delicately and definitely to customs, habits, modes of life, and economic and civic conditions, as these affect the housing, food supply, sanitary facilities, working conditions, opportunities for recreation and employment of leisure, etc., of a community. If all these are comprehended in what we call public hygiene, then we shall find almost inevitably that where this is good and effective, tuberculosis cases and deaths are relatively few, and where it is bad or ineffective, they are many.

This universally noted circumstance gives us the clue toward what direction our efforts with children must take. Without analyzing the factors which cause tuberculosis to reflect the state of public hygiene, I would point out more explicitly where our efforts should, it seems to me, be concentrated.

Because the foundation is in existence, and much of the machinery is here, and there remain only details of execution to fashion and refine, it would appear that the schools, public, parochial and private, are the most promising media through which tuberculosis prevention is to be accomplished. There is at present much in the air in the way of plans and programs and design, much that is sound. But how far do performance and execution fall short of what *could* be done!

Almost every child still contracts measles, and all of them frequent colds; and in most instances these maladies originate from school exposure. Add to these the number of cases of preventable whooping cough and diphtheria and tonsilitis and sore throat which are passed around in school, and we obtain an enormous case aggregate of obviable causes, which in many instances have a good deal to do with bringing out manifest tuberculosis—in neck nodes and in lungs and thence to bones and joints and even meninges. Or, it may be, in thousands of patients these intercurrent infections give renewed life to tuberculous infections which were just about to die out and which, even though they caused no appreciable trouble in childhood, acquire a new stability which carries them along for years more, and even into adult life.

It was perhaps inevitable that our laudable legislation to compel attendance at school should increase the opportunities for the spread of communicable diseases and that the latter should outrun our efforts at control. But it is not so inevitable that we cannot catch up. Prevention of contagion—the means and skill to detect foci, the removal and segregation of carriers at the proper time, the keeping of weeds forever out of schoolrooms—means much more continuous and relentless attention to duty than periodic attendance on the sick; it requires much more and better medical service, much more honest and enlightened officials and much better informed public opinion than now exist in most places. To keep five hundred school children, or less, reasonably free from preventable and transmissible diseases might well require the full time of an active physician. A political hack or favorite, such as the everyday run of doctor-politician, a man, as a rule, of uncertain income in practice, of little skill in the detection of disease, cannot and does not look after ten children efficiently. The time is coming when this work of school physician is going to be done by only the very best men who are specially trained for this task, who give all their time to it, and who, as a corollary, are going to be paid accordingly. This is the goal which every health body should aim at, the end that it should speed. Let us get together and work harder than ever to do away with this endless succession of preventable minor — and major — disabilities which stir up tuberculous infection in our children; it will mean big future dividends.

There must be something in our manner of life which is producing the enormous incidence of diseased teeth, hypertrophied or incompetent tonsils and adenoid growths in the nasopharynx in our children. At any rate, few reach ten years without some one or all three of these affections. Buccal and pharyngeal irritation or infection has, as is commonly observable, a peculiarly intimate effect on the cervical lymph nodes. And once we reflect that these nodes adjoin and drain the two major portals of entry of tubercle bacilli, that they are the most frequent sites of clinical tuberculosis in children, that, for every case of manifest disease there are certainly several times as many infections, and that tuberculous infection within them is markedly affected by any disturbance of their normal function, we begin to realize how much healthy mouths and throats may mean in the prevention of tuberculosis. To attain maximum mass results in this respect we again have no better medium than organized prophylactic efforts in the schools. My formula once more would be more school physicians, on full time and paid in a way to attract and demand the best talent; and, from the point of view of tuberculosis, a thorough appreciation on their part that the original excitant of tuberculosis in children is often a diseased mouth or throat.

As more physicians become familiar with the masked and obscure manifestations of tuberculosis, which are met with more frequently in children than in adults, they will prevent many later and more serious outbreaks of the disease.

Many children are coming to our clinics with minor eye affections, usually phlyctenular conjunctivitis. Sometimes these antedate the appearance of tuberculous lymphadenitis or pulmonary disease, while at other times they occur during the course of these; but in a good many they may exist alone, and our experience leads us more and more to believe that an underlying tuberculosis is the etiological factor—an opinion which is gaining wider and wider currency.

Such cases of eye disease should be treated for tuberculosis and not merely locally. Taken in time and put under a modified tuberculosis regimen, they respond well and escape frequently the clinical evidences of more advanced infection. They are frequent in children, and their recognition and handling as tuberculosis constitute prophylactic work of the first order. There are, besides, other children who may exhibit their infection, for a time at least, only by skin eruptions, of which several are now pretty satisfactorily determined as of tuberculous origin. Those who are taken in hand and treated for tuberculosis, and not allowed to go their way after the application of ointments and powders, will again in many cases fall out of the ranks of future consumptives.

The prevention of adult tuberculosis which can be done by quasitherapeutic institutions like the open air school, or schools adapted to the peculiar needs of delicate children, is incalculable; they will repay any amount of development. What children themselves assimilate from such movements as that of the Health Crusaders cannot be estimated; but the conclusion is inescapable that thousands will carry precept and practice, even though imperfectly, through childhood and into later life, and will translate into action and habit, health practices which on occasion will turn the scale in favor of the continuation and permanence of the inactivity of long standing infection.

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THE PREVENTION AND CURE OF RICKETS BY SUNLIGHT

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New York City

Read before the Child Hygiene Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 15, 1921.

RICKETS is the commonest nutritional disorder occurring among infants. In spite of this fact little interest has been manifested in it, either by the clinician or by the laboratory investigator. Its status from an etiological point of view was, until recently, much the same as it had been for the past 250 years, from the time when Glisson and his associates recorded its appearance in England. Broadly speaking, it may be stated that physicians have been divided into two camps regarding its origin, some believing the main cause to be dietetic, and others ascribing its occurrence to faulty hygiene.

During the past few years renewed interest has been aroused in the study of rickets, both in this country and abroad, owing to the fact that some have ascribed it to the lack of a vitamine, and also because it has become possible to produce the disease with regularity in animals. Studies, however, have not progressed sufficiently far to harmonize opinions as to its causation. The well known investigations of Mellanby[1] have led him, and others, to the conclusion that the nutri-

tional alterations are due to a deficient diet, the lack of a vitamine identical or closely associated with the fat-soluble vitamine; whereas the work of Findlay and Paton[2]—clinical as well as experimental—have led to the deduction that the disorder is to be ascribed to hygienic factors.

In previous communications I have taken the position that although a faulty diet may lead to the development of rickets, a lack of vitamines is not the dominant cause, for infants develop this disorder in spite of obtaining adequate amounts of these unidentified food factors. Some years ago we went a step further, and attempted to correlate the diet of nursing mothers with the occurrence of rickets in their offspring. A study was made of the diet of the negro mother in New York City,[3] for, as is well known, negro babies are particularly prone to rickets. The result of this investigation may be summarized by the statement that the diet of these mothers was found to be lacking particularly in fresh vegetables.

Defective hygiene may be interpreted in many ways. The majority have understood by this term, a lack of fresh air, an accumulation of poisons due to overcrowding and confinement in poorly ventilated rooms, whereas others, notably Findlay and Paton, have stressed more especially a lack of exercise.

For some time I have been actively interested in the relation of light to the development of rickets. My attention was directed to this aspect of the question on account of the striking seasonal incidence of rickets, which, as you know, occurs with marked frequency during the winter and spring months, decreasing and almost disappearing with the advent of summer. Based on this phenomenon, an attempt was made some years ago to cure rickets by means of the ultraviolet ray. Our results then were inconclusive. More recently Huldschinsky[4] has made use of this therapeutic measure with definite success, using the mercury-vapor quartz lamp. During the past year Dr. Unger and I have been treating cases of mild rickets which developed on the usual diets (ordinary formulas of milk, orange juice, and in the case of older infants, cereals), with frequent short exposures to direct sunlight.[5] The results have been most encouraging. The infants have not only improved in general vigor and nutrition, but the signs of rickets have rapidly disappeared under this treatment. The babies were exposed to the sun for 15 minutes to an hour, first the legs, then the arms, and, when the weather was mild, the chest and back. At all times the period was regulated according to the outdoor temperature as well as to the sensitiveness of the skin of the infant. It is evident that no rule can be formulated in this regard, but that one must be guided by the reaction of the individual child, for example, whether it has a tendency to tan or to burn. The sun's rays must impinge directly on the skin, and not pass through the window pane or be obstructed by the baby's clothing. The treatment was given every day when possible; as a matter of fact, it could be carried out but four to five times a week. It was found, without exception, that the signs of rickets rapidly disappeared under this therapy. The beading of the ribs diminished, the characteristic signs as seen by the X-ray became obliterated, with a definite increasing deposition of inorganic salts at the epiphyses of the long bones. These clinical and radiological manifestations of healing were substantiated by chemical evidence. Recently Howland and Kramer[6] have shown that rickets is accompanied by a diminution of the inorganic phosphates of the blood. Following some weeks of heliotherapy, it was found that the inorganic phosphate content in our cases gradually increased in amount and reached normal.

As stated, rickets can be brought about with regularity in animals. In this country rats have been used for these ex-

periments, in England dogs have been employed. A distinction may be drawn between rickets in animals and in human beings, in that it develops in children on the liberal diets in common use and no one type of diet has been identified with its incidence. Without going into detail of the animal investigations, it may be added that we have found the sun treatment quite as efficacious in the rickets of rats as in infantile rickets. If rats are exposed to the sun's rays for intervals of 15 to 30 minutes daily, they can by this means regularly be protected against rickets, whereas animals fed on the same diet, but kept at all times in the dark, develop rickets in all instances.

DISCUSSION

That rickets can be prevented or cured by sunlight does not imply that light is the only agent to be relied upon as a therapeutic measure. It should not be forgotten that we possess a specific for rickets, that cod liver oil can be relied upon for its prevention or cure. In a study of rickets carried out a few years ago by Dr. Unger and myself among the negro babies of the Columbus Hill district of this city,[7] the efficacy of cod liver oil was clearly demonstrated. As a result of this experience, and that of others, we stated that rickets could be eradicated from New York City by a yearly expenditure of about $100,000 for cod liver oil.

What we wish to emphasize more particularly is rather the prophylaxis against rickets. At the present time it is impossible to state the comparative rôles of dietetic and of hygienic factors in its etiology. Probably their influence varies at different times and under different circumstances. During the war, defective diet, no doubt, was a potent factor in increasing the incidence of rickets in the Central Empires. In New York City I believe that lack of sunlight plays a very important rôle in its development, and I am strengthened in this view by the marked seasonal incidence which it evinces.

Now that it has been shown that sunlight is a valuable preventive and curative measure in rickets, those active in infant welfare will have to regulate the care of the baby so that it is not deprived of this simple and beneficient therapeutic agent. At the present time infants are swathed from head to toe in clothing, so that the sun can fall only upon their faces; even in the mildest weather their bodies receive little direct sunlight. Such habits should be altered. If the baby is in the sun, its arms and legs may be bared without causing discomfort. In cold weather the body must be particularly well wrapped, and the hands and feet protected, but the arms and legs may be exposed.

It is evident that a corollary of the benefits to be derived from sunlight is the need of improving the housing conditions of the poor, and the elimination of the dark tenements which shut out all the sunlight. This gospel is applicable to children's wards in hospitals and child-caring institutions, and should lead them to increase their provision for outdoor treatment, roof wards and solaria. The solaria must not, however, be enclosed in glass, for, although the light and heat rays penetrate glass, a large part of the radiations which cure rickets are lost by the rays traversing the window panes.

The fact that sunlight plays an important rôle in the development of rickets certainly explains, to a large degree, its distribution and the comparative freedom of the children of the tropics and in the countries where an outdoor life is followed. No doubt this is not the only factor involved.

These clinical results, confirmed by laboratory experiments, show that, although we have realized the importance of light in the growth of plant life, we have accorded it too little significance in the development of animal life. We have known that a growing plant cannot thrive in the dark, but have failed to realize that the same laws apply to growing ani-

mals. Infants have been the chief sufferers from this lack of understanding, and the development of rickets one of its unfortunate results.

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Organizing an Anti-Malaria Campaign.—The following outline shows the program for county-wide malaria investigation and control under which the work of the central administration unit of the Alabama State Board of Health has been carried on, with gratifying reductions in morbidity and public expense. Some of the results for 1921 are reported in the State Notes section of the JOURNAL.

This program has the active coöperation of the U. S. Public Health Service and the International Health Board, and may well serve as a suggestive model for other communities where the malaria problem is prominent.

I—Instruction of county health officer by malaria control expert in:

1. Catching and identification of species of mosquitoes, including larvae, pupae and adults.
2. Essentials of drainage, oiling, use of fish and larvicides.
3. Essentials of screening and quinine control.

II—Surveying of and work in communities suitable for work by county health officer and malaria control expert.

1. Organization for work determined by local conditions.
2. Work under supervision of county health officer.
3. Inspected regularly by malaria control expert.

III—Work in rural places by county health officer.

1. Institutions.
2. Farmers.

IV—Educational and publicity work; under control of county health officer, advised and assisted by malaria control expert.

1. Personal conferences, lectures and demonstrations.
2. In schools.
   a. By health officer: demonstrations.
   b. By teacher: use of "Malaria Primer."
3. Exhibits and demonstrations at county fairs, chautauquas, etc.
4. Distribution of literature, placards, etc.
5. Newspaper articles.
6. Work with boys' organizations.

V—Prevention of future man-made Anopheles breeding places.

1. By coöperation with railroads.
2. By coöperation with county officials and road builders.
3. By coöperation with farmers and manufacturers.

VI—Promotion of drainage districts, and tying up of malaria with large agricultural drainage projects.

VII—Collection of malaria and mosquito statistics by the county health officer.

1. From doctors: reports and statements.
2. From officials: statements.
3. From school children: statements, possibly spleen examinations and blood smears.
4. By malarial census in chosen places.
5. By use of "spot map" to indicate relative prevalence in parts of county.

VIII—The state malaria expert and assistants who:

1. Survey each county and advise the county health officers as to what places to control and how to control them.
2. Instruct county health officers in malaria control work.
3. Inspect work in counties regularly.
4. Collect all data and information in counties and from outside and acquaint all health officers with it.
5. Keep records of all work being done throughout state.

REPORT OF THE COMMITTEE ON PREPARATION, PACKING AND TRANSPORTATION OF FOODS

Read before the Food and Drugs Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 18, 1921, and recommendations approved.

THE economic consequences of the war has perhaps exerted no greater influence on any industry than the food industry. The impetus to greater food production in order to meet the increased demands of Europe and this country during the war has now been succeeded by a retrenchment in production, carried in some instances to a point lower than in prewar times.

With the market of the European countries greatly diminished as a result of their financial inability to buy, production of those foods which before and during the war were exported in great quantities naturally dropped in accordance with the inexorable law of supply and demand. With the decline in exports, the first result was the glutting of the domestic market followed by reduction in prices which, in turn, inhibited production. If continued in the case of basic foods, this curtailing of production may go on to the point where public health is seriously damaged.

When production is on the downward path there is but little stimulus to search for newer and better methods of food preparation, and that, in a general way, is true of the past year.

The increased freight rates which went into effect last year undoubtedly had an important effect on production of foods. Railroad rates were raised to the highest level they have ever reached in this country on August 26, 1920, when advances of twenty-five, thirty-five and forty per cent were authorized by the Interstate Commerce Commission in the southern, western and eastern districts, respectively.

Only about eight weeks after this final advance in freight rates there was a sudden, sharp and apparently unexpected decline in industry generally. With the practical collapse of foreign markets and decreased demand in this country, many of the basic food products fell to prices as low as or lower than the prewar level, while freight rates continued at their peak. It was reported in many instances that growers of fruits were unable to obtain in the distant markets to which their products had been shipped, a sufficient price to cover the freight charges to market. It is, of course, true that this reduction in the price of many food commodities was not brought about by the high level of freight rates, but it is equally true that the continuance of a high level of freight rates concurrently with the immense drop in commodity prices, is a factor tending to discourage production, and it is hoped that as one of the factors involved in the general readjustment, freight rates on important food articles may be substantially reduced in the near future. Some effort has been made along this line. Substantial reductions have already been made in line haul livestock rates and in rates on fruits from the Pacific Coast to eastern consuming points. The Interstate Commerce Commission has also just ordered a reduction in the rates on wheat, coarse grains, and grain products, such as flour, which will remove half of the advance of August 26, 1920.

The problem is not easy of solution, because it is urged by the railroads, and perhaps with entire truth, that they cannot reduce their freight rates so long as the general volume of traffic continues abnormally low and wages and working rules bring about abnormally high operating costs.

It is sincerely to be hoped, however, that those charged with the direction of these important matters will find some method of accommodating the situation to the changed condition brought about by the readjustment following the war.

The admonition and advice to econ-

omize in food dictated by necessity during the war have undoubtedly left a more or less permanent effect on the public at large, and the business and industrial depression which followed the beginning of the readjustment period not only did not remove the urgency for food economy, but on the contrary, gave it added stimulus.

More was written on the subject of diet and food economy during and since the war than perhaps in any similar period, and indications are that this will continue. Dietetics is a very popular subject just now both for writers and speakers, and hardly a day passes without some dietetic advice appearing in the daily press or in the magazines on some phase of diet and nutrition.

As is to be expected, among the mass of what is written and said about the subject is considerable speculation and faddism, and the authors cannot always lay claim to scientific attainments or careful observation and study. However, valuable original research had been reported from a number of the leading American investigators in the field of nutrition whose efforts were greatly stimulated during the war, and it is to be hoped that they will continue their work because the need for such work is as great as the benefit to be derived from it is of tremendous importance to the public health.

It is admittedly true that the science of dietetics has been grossly neglected heretofore, particularly in medical schools. Hardly any emphasis is placed on the importance of diet both in health and disease. Few medical schools have chairs in dietetics. It is merely touched upon in the general teaching of physiology and is again referred to briefly in the study of the treatment of individual diseases.

There are unmistakable signs, however, which prove that this state of affairs is changing. Many colleges, universities, and hospitals are now giving courses in dietetics, or dietetic teaching is included in the general subject of domestic economy. In addition, a number of scientific bodies of high caliber have laid out programs for extensive study of the various problems of nutrition and food production, notably the National Research Council through the proposed National Institute of Nutrition.

That economic food production, preparation and distribution is looked upon as important to public health is seen from the fact that a Food Research Institute has been established at Leland Stanford Junior University by the Carnegie Corporation, with an endowment of $700,000.

According to announcements, the Institute will study all problems of production, distribution and consumption of food, and judging from the personnel of the directorate, important results can confidently be expected from their work.

The ideal diet of civilized man is one composed of food in proper proportions, both from the animal and vegetable kingdoms, and since an adequate supply of food animals depends on the availability of sufficient feed on which to raise them, it is apparent that the question of utilizing the feed so as to get the most human food in return is important.

Animal nutrition, as far as it affects the value of animals as converters of vegetable food into food for human consumption, has always been the subject of considerable study, but it received increased attention during the war because of diminished supply both of fodder and animals in some countries.

According to a previous report of another Committee of this Section which was published in the AMERICAN JOURNAL OF PUBLIC HEALTH, some observers have stated that more human food is obtained in calories through the milch cow than the beef steer. In other words, it is claimed that the cow will produce more human food in the form of milk, veal and beef from her own carcass from a given quantity of feed stuff than will the beef steer; or that it takes more feed stuff to produce a pound of human food by feed-

ing it to a beef steer than by feeding it to a milch cow.

Because of this and because milk is relatively rich in vitamines and calcium, it has been recommended: first, that more milch cows and fewer beef steers shall be raised, and second, that less meat and more milk be included in the diet.

It can probably be demonstrated by calculations that the cow will return more human food in calories than the beef steer, provided the same results are always obtained in the feeding and breeding, and certain side effects are not taken into consideration, and for a short period during a shortage of feed stuffs it might be advisable to favor the milch cow. It is, however, seriously to be doubted if a long continued increase in milch cows and decrease of beef steers would result in economic or other benefit to the consumer. The advocates of an increased milch cow production claim that the cow produces more food in the shape of milk and veal and beef than the steer, but in making a comparison of the value of these two types of animals there are certain facts that should be given consideration. The economic loss occasioned by condemnation at time of slaughter is far less in the case of beef steers. The loss on the side of cows is due to the drain of repeated pregnancies and lactation predisposing to tuberculosis.

If more energetic eradication measures were taken, a gain in production of beef, veal and milk would soon be attained that might outweigh any gain that can be hoped for by an increased production of cows at the expense of a decrease in beef steers, because it is a well-known fact that certain diseases are communicable between farm animals, particularly cattle and hogs.

Another important consideration that must be taken into account when figuring what the cow returns for human food is the fact that abortion often cuts down the yield both in milk and veal. Again, beef steers are better adapted to range lands that are now producing a large percentage of our beef supply, and the decreased labor involved in the production of beef steers is an important economic factor.

We must also consider certain side effects that would surely follow an increased cow and decreased beef steer production and which are of economic importance to the consumer.

A reduction in the number of steers would result in a material decrease in beef fats that are adapted to many food purposes. A diminished number of steers would also mean a lessened supply of steer leather which is considered best for shoes; also a diminished supply of tallow, gelatin, glue and other articles of daily use.

All of this must be seriously considered in the economics that are involved in the advocacy of a reduction in beef steers.

Edmund Coultey, discussing lacto-vegetarianism, stated quite some time ago:

"Carried out thoroughly to its logical conclusion, it would have a most profound effect on life generally. Under such a scheme of diet all animals except those used for draught purposes and pleasure would gradually be abolished. Were fowl only kept to supply eggs and feathers, the price of eggs would rise considerably. So, too, the supply of milk would be insufficient and its price prohibitive, for cattle could not be kept profitably for the supply of milk and leather alone. Woolen clothing would become the luxury of the rich. The bulk of the grass grown would be absolutely wasted unless the science of the vegetarian were able to prepare from it a food for man. The productive value would be, however, increased if the grass plains were converted into arable land for the growth of cereals and sugar beets, and into orchards for fruits and nuts. We should have an insufficient and expensive supply of milk, milk products, and eggs, wool and leather. We should be dependent on cotton and linen for clothing and on compressed cellulose for boots and many other purposes."

When we turn to the physiological side

of the question, it is fair to state we find quite as much uncertainty. It has been advised that more milk and less meat be included in the diet on the ground that milk is relatively rich in vitamines and calcium.

Professor Murlin recently very properly referred to the discovery of vitamines as one of the four great concepts in nutrition. It is, however, no exaggeration to say that in some quarters too much stress has been laid on the importance of vitamines, in the adult diet at least. To quote Professor Murlin:

"A reduction of a few per cent in the capacity of a food to protect a guinea pig from scurvy or to promote the growth of a white rat, should not be accepted as proof that we are all about to die of deficiency diseases."

Walter H. Eddy in his recently published *Vitamine Manual* gives a list of ninety-four foods which contain one or all of the three known vitamines. With these food elements so widely distributed, there does not seem to be any danger of a deficiency in the average diet.

The British Medical Research Committee seems to have taken a rational view of the vitamine question. Its report states:

"These accessory factors or vitamines are widely distributed among naturally occurring foodstuffs, and in time of peace, under normal conditions of food supply, the variety of food consumed by European nations protects them from risk of any deficiency in these essential substances."

The same is undoubtedly true of this country. Very much the same principle applies to advice to consume more milk because of its calcium content. There is no evidence of a lack of calcium in the average diet, at least not in the diet of adults. Primitive man evidently managed to get his calcium and so do the Esquimos and the carnivorous animals to-day. There is no doubt but that the value of more milk in the diet is not fully appreciated, but the increase should not be at the expense of other valuable foods. We should all aim towards the education of the public to the best suited and best balanced diet, including all the essential elements.

A very interesting, instructive and important example of misapplication of the vitamine hypothesis was furnished recently by a bill introduced in Congress to prohibit the manufacture of a class of foods known as "Filled Milk" and which are admittedly wholesome and nutritious. Those favoring the bill did so on the ground that these foods are composed of skimmed milk and vegetable fat, usually cocoanut oil, and are deficient in vitamines and, therefore, might become injurious to health and might lead people to believe that they were buying milk even though the labels on the containers plainly stated what the ingredients were.

A number of excellent authorities appeared before the committee and discussed the bill from all angles. Lafayette B. Mendel furnished the committee with a written opinion which we believe is very rational and we, therefore, quote it in part:

"Preparations of so-called 'Filled' Milk are emulsions of vegetable fats in skimmed milk. Cocoanut oil is commonly used, I believe, in preparing them. These fats are admittedly digestible and nutritious; so is skimmed milk, which, owing to fostered prejudices, has been a greatly undervalued article of diet. The milk compounds should be properly labeled, as every package of food should be. They should not be recommended for use in infant feeding; on the other hand, no harm can come from the chance use of a quantity of skimmed milk even by infants. I mention this because the opponents have spread the impression among gullible persons that the use of a can of milk compound is a positive menace to the infant which consumes it. Skimmed milk is not a rank poison. It is merely not a complete food for an infant. Neither is barley water nor prepared foods.

"I am informed that some of the milk compound packages and advertisements not only give the composition of the contents, but specifically indicate in words that the

product is not recommended for infant feeding. What, then, shall we say of the value of the milk compounds, properly marketed in conformity to the pure food laws for adult nutrition? I do not see how they can be designated otherwise than as wholesome food. Indeed it would be a nutritional advantage if skimmed milk were used more widely in culinary practices. It greatly enhances the value of cereals, notably the 'staff of life,' bread. 'Filled' milk enriches them also, adding wholesome fats. No one knows at present to what extent 'Vitamine' may be required by adults, but in any event the latter, using a mixed diet of adult life, are not dependent upon cream for this food factor. It is quite as reasonable to object to the sale of polished rice or patent flour; indeed, skimmed milk and its 'compounds' surpass either of these foods in nutritious properties. The opponents of 'filled' milks have tried to exclude them on the plea of 'menace to public health.' No public-health question is involved. The claim is a specious one. The House bill represents a fight between industrial interests and I am confident that the medical profession would not admit that any wholesome food is a menace. Life and health are not endangered."

To paraphrase a famous saying, "Vitamine, what crimes are committed in your name!" More has been written about vitamines recently than about any other phase of food and nutrition. As was probably to be expected with a subject as new as the vitamine theory, not all the literature is based on scientific research or study. Unfortunately, in addition to the great wealth of truly epoch-making work that has been reported, the public has in many instances been served gross misinformation, intentional or otherwise. Perhaps the best example of this is the statement made in a book on food recently that "water and air are very rich in vitamine."

The patent medicine man and the "cure-all" manufacturer were not slow in taking advantage of the vitamine theory and the great publicity it has received the past few years. The public has been literally flooded with preparations in the shape of foods, drugs and confections that are supposed to be chockful of vitamines and will cure almost any human ill, as well as preserve youth and enhance beauty.

It has even been stated that cancer may be due to a lack of vitamines; hence in order to prevent and cure cancer, eat this or that vitamine food. At first glance these substances seem harmless enough and quite unworthy of serious consideration, but their numbers and the extravagant claims made for them constitute a potential source for positive harm. Like all "cure-all" remedies, they may do a great deal of harm by inducing the sick to rely on them rather than seek competent medical advice and so delay proper treatment for their afflictions until a cure is no longer possible. Even in the case of the well, they are injurious when they induce people to rely on foods or drugs, patent or otherwise, to the exclusion of other essential foods.

The whole matter seems of sufficient importance to merit the attention of this Section, or possibly the Association as a whole, to the extent of arranging and publishing a statement of the present knowledge of vitamines, their possibilities and limitations, and their proper place in the diet and in medicine.

Such a statement would carry as much weight of authority as the "standard methods" series issued by the Association, and would accomplish a great deal towards stabilizing and disseminating the truth about vitamines, in so far as it is known to-day.

WILLIAM H. LIPMAN,
Chairman.

F. C. BLANCK
ANNA A. CHAPIN
ALFRED W. LOMBARD
T. D. BURDETTE.

REPORT OF THE COMMITTEE ON NUTRITIONAL PROBLEMS (DRIED MILKS)

Read before the Food and Drugs Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 15, 1921, and adopted by vote of the Section.

IN accordance with a resolution passed at the last annual meeting of the Association, the Committee on Nutritional Problems devotes its report this year to the subject of dried milks, with special reference to the possible development of the dried milk industry as a means of increasing, conserving and marketing the milk supply.

Economy of time and space makes it necessary for us to present the results of our study of this subject in somewhat categorical form with little of introduction or discussion. The points which seem to us especially worthy of emphasis at the present time and from the standpoint of the resolution referred to, are as follows:

(1) Examination of statistics of food supply and data of dietary studies recording the food habits of hundreds of presumably representative American families, and the comparison of such data with the results both of clinical experience and laboratory experiments upon human beings as well as lower animals lead unmistakably to the conclusion that the highest degree of health and vigor can be expected only from dietaries or food supplies which are richer in milk than is the present average food supply of the American people. In the interest of the public health the American milk supply should not only be fully maintained; it should be increased more rapidly than the growth of population so that we may have an increased per capita consumption of milk in its various forms.

(2) To increase the milk supplies of cities and towns by bringing fresh milk from greater distances must necessarily tend to increase the cost. It is probable, too, that any very great intensification of milk production within the present market milk areas would also tend to increase the cost, especially in view of the seasonal factors which affect both the supply of, and the demand for, market milk.

(3) In order that the seasonal surplus of milk produced in the present market milk areas may be conserved for human consumption, and that as it becomes necessary milk may be brought economically from greater distances, it seems both inevitable and desirable that the preservation of milk by condensing, evaporating or drying should be much more fully developed, and that such preserved forms of milk (either as such or after being "remade" to the composition of fresh milk) shall play an increasingly important rôle in the food supply of the future.

In this connection we may quote the opinion of Dr. Lucius P. Brown that the introduction of milk-drying plants will constitute a large and highly important factor in the development of the dairy industry in our southern states in the very near future.

(4) In view of the recent development of new methods of studying food values through feeding experiments with laboratory animals, it would seem well worth while, if funds could be found, to institute a thorough investigation of the relative nutritive values (from all standpoints) of condensed, evaporated and dried milks. In the absence of the detailed information which can only be obtained by such investigation we shall not here attempt any comparison of these three forms of preserved milk, but will consider only the question of dried milk and dried milk products as referred to us at the last annual meeting of the Association.

Probably the three most important points to be considered are: (a) the sanitary aspects of the milk-drying industry, (b) the nutritive value of dried milk and

its products, (c) the possible effects of a dry milk industry upon the dairy industry and milk supply as a whole.

(5) The cleanliness of a dry milk product will obviously depend in large measure upon the cleanliness of the milk which was dried; and sanitary conditions in the factory and the details of method employed will largely influence the opportunities for recontamination of the dry product during handling and packing. Milk-drying establishments should naturally be subject to the same inspection as other food factories with reference to the sanitary aspects both of the materials and the methods which they employ. On the other hand, the ordinary processes of commercial drying are more efficient even than pasteurization in destroying the bacteria originally present in the milk, and the product is no longer in danger of secondary decompositions and is no more subject to secondary contamination than any other dried food. Dried milk may be considered, for practical purposes, as free from danger of the transmission of epidemic disease, except under the rarest and most exceptional circumstances, and its general use should mark a distinct gain from the standpoint of sanitation.

(6) The nutritive value of dry milk and its products has been the subject of extended study and report under the auspices of the Local Government Board of Great Britain and has likewise been treated in several publications of the United States Public Health Service. Some of us have been privileged also to see a report upon the use of dried milks as human food prepared by Dr. E. V. McCollum for the International Health Commission, and have been connected with laboratory investigations in which dried milks have constituted the chief part of experimental diets.

The evidence which has come to us from these different sources is quite consistent, and plainly places dried milk with pasteurized milk as regards the various factors of food value. In both cases the only significant change which occurs as the result of the heat treatment with its attendant manipulations, if properly conducted, is a diminution of the antiscorbutic vitamin. This has already been recognized as a possible result of pasteurization and it is now a generally accepted practice to give orange juice or some other suitable antiscorbutic to all infants artificially fed on any other than fresh *raw* milk. The orange or tomato juice thus given primarily as an antiscorbutic is undoubtedly beneficial in other aspects of nutrition as well, and with this addition to the diet it becomes unnecessary to debate further as to the extent to which the antiscorbutic vitamin present in the milk is diminished in the drying process or whether there is greater destruction when the drying is accomplished by one mechanical process than by another. The original vitamin content of the milk, its freshness when dried, and the manner in which the drying process and the subsequent handling of the product is conducted are all factors of possibly equal importance with the mechanical principle on which the drying process is based. It is important also to remember that the processes for drying milk are still undergoing development and modification. In our opinion, it would be a mistake to prejudice the development of the industry at this early stage by any expression of preference as between the different drying processes, based merely upon consideration of the antiscorbutic vitamin. We think it much better to recommend that an antiscorbutic be given in all cases in which dependence is placed upon either pasteurized or dried milk by whatever process prepared. In fact, in view of the dependence of the antiscorbutic value of milk upon the diet of the cow (or of the mother), it may be advisable that all children receive an antiscorbutic.

Aside from the question of antiscorbutic vitamin, which easily can, and in our opinion always should, be provided from other sources, we believe that milk dried by any of the modern methods

properly conducted is the equivalent of the fresh milk from which it was prepared.

The British report above referred to states explicitly "that cow's milk, during the process of desiccation, loses none of the characters which are necessary for the support of normal growth in infants." The United States Public Health Service also reports highly favorable results from the use of dry milk products in infant feeding. McCollum records most excellent results from the addition of dried milk as sole milk supply to the dietary of an institutional group of children, and many experiments could be cited in which dried milk as a sole food has supported good health and normal growth in the rat for periods much longer than would correspond to infancy and early childhood in the human subject.

We believe there is ample evidence to support the position taken by the Commission on Milk Standards that there is no occasion for prejudice or discrimination against dried milk as compared with pasteurized milk even as concerns the most delicate factors of nutritive value.

(7) Since the best standards of nutrition and health require not only the conservation of our present milk supply but its increase, in order that the per capita consumption of milk may grow with the knowledge of the food value of milk and its proper place in the diet, it is important that the drying of milk be considered also from the standpoint of the effect of this industry upon the dairy industry and milk supply as a whole.

In his paper on "Remade Milk and Cream," presented at a special conference of the International Association of Dairy and Milk Inspectors in April, 1919, Redfield summarizes as follows the claims made for remade milk and cream:

1. They are very valuable for making up the shortages which normally occur in the fall of the year and are much cheaper than "accommodation" milk and cream.

2. There is a great saving in transportation with regard to labor, car space and refrigeration when milk powder and butter are shipped instead of liquid milk.

3. Powder and butter preserve milk in the condition it was in on leaving the cow and prevent the undesirable and very possibly deleterious changes which occur during the holding and shipping of liquid milk.

4. Cities not surrounded by a dairy section or cities in a hot climate can be provided with as good a milk supply as cities more favorably located.

5. The price of milk and cream would be stabilized because powder and butter could be put away in the time of plenty and held without appreciable deterioration until the time of shortage.

6. Waste is prevented and the food supply is conserved because each distributer can make just what he needs each day and will never have an excess to spoil on his hands (or to be made into butter and cheese at a money loss because he has paid market milk prices and transportation charges on his raw material for butter and cheese and so cannot compete with the country creamery).

7. A much more uniform body and flavor can be obtained in cultured milks if remade skim milk is used than if natural skim is employed. The claim is made that there is, moreover, a shortage at all seasons of the year, in cities, of natural skim milk which is acceptable in quality for making cultured milks.

At the annual convention of the same association in December, 1919, G. B. Taylor, market milk specialist of the Dairy Division, United States Department of Agriculture, discussed the "Effect of Remade Milk on the Dairy Industry," basing his report upon letters received from heads of dairy departments in the state agricultural colleges to whom he had written asking for an expression of opinion. The great majority of these heads of dairy departments reported their belief that the powdered milk industry will be a benefit to the dairy industry and

to agriculture in general, as stated in the following reasons:

a. It will help stabilize the market for dairy products.
b. It will help solve the problem of surplus milk.
c. It will increase the use of milk generally, especially in countries where, on account of climatic conditions, the use of milk has been restricted.
d. It will not compete directly with the market milk industry, but will be used principally for cooking, for bakeries and confectioneries.
e. The manufacture of skim milk powder would be an advantage to dairymen since the prices realized by them in supplying milk for this product are very satisfactory.
f. The more uses milk is put to, the better it is for the dairy farmers.

The opinion is widely held and in our judgment well founded, that the dry milk industry will not seriously compete with or in any way injure the fluid milk industry as it now exists, but, rather, will supplement it and make possible the good use of its seasonal surplus; that with increasing recognition by consumers of the great importance of milk as food for adults as well as for children, dried milk will come to be largely used in cookery without diminishing the consumption of milk in fluid form; that the drying of milk both as a means of preservation and of greatly reducing transportation costs will permit the extension of the milk industry into regions too distant from large markets to ship milk in fluid form; that because of this extension of the source of supply, the greater consumption of milk in its different forms should not necessarily result in higher prices; that the drying of milk will greatly facilitate the production and handling of milk in the South where lack of natural ice so greatly hampers the fluid milk industry and where an increased use of milk in the diet is so urgently needed and will doubtless do more than anything else toward the lowering of the infant death-rate and the suppression of pellagra among adults.

H. C. SHERMAN,
Chairman.
C.-E. A. WINSLOW,
E. L. FISK,
I. GREENWALD.

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SIMPLICITY IN PREPARATION OF BLANKS AND FORMS

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Read before the Vital Statistics Section, American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 17, 1921

ONE of the duties of state registrars under the Model Law is to prepare, print and supply to all registrars all blanks and forms.

Blanks and forms are the confining channels through which flows the stream of vital statistics. Lacking their controlling direction, a surging mass of data would be hurled upon us such as would shame Niagara's flood in volume and be about as easily harnessed. By insistence upon the use of uniform blanks and forms, our data come to us in such a way that they are reasonably subject to classification.

But blanks and forms are only of value as they facilitate the gathering of information with reasonable accuracy. It is,

therefore, of extreme importance that three parties at interest be considered in their preparation: (1) the one who is to originate the data; (2) the agent through whom the collection is to be made; (3) the ultimate consumer.

1. The party of the first part is first in our consideration in more ways than one. He must fully comprehend the blank that we ask him to fill. He does not know, and many never will know, just why we ask for all of this information, but at the very least it must be called for in such a way that he hears the call in plain English.

2. The second party must know the whys and wherefores of our blanks and they should be carefully explained to him.

3. The third party is the one for whom most of these data are gathered. When they are delivered to him they should be dependable so that he may not misinterpret them. It is more worth while to get a few definite, dependable facts, than to gather large quantities of unintelligible fiction.

I think we shall all agree that in the preparation of blanks and forms for purposes of gathering vital statistics, the supremely important matter lies in reaching the understanding of the individual who is to fill out the blank and securing his cheerful coöperation. In this brief paper, therefore, I shall direct most of my observations to that end.

Our blanks may be roughly considered under two heads: (a) those current in all registration states, such as the standard certificates; (b) those formulated by registrars to meet their local needs.

Since the standard certificates represent the expenditure of so much time and exhaustive study on the part of our experts, there is not very much to say about them. Our disposition is to adopt them wholesale and pass them on to our local registrars for general distribution. This is a correct attitude in the main. Yet we must bear in mind when we decide upon uniform blanks, that we are not a uniform people. Our country, catholic as it is, covers a vast stretch of territory and unites many states. It is easy to conceive that there may be some peculiarity about certain of the people dwelling in one particular state that will make them place an unusual construction upon some of the provisions of a uniform blank. Its form may have to be changed to suit their comprehension.

I hold in my hand a copy of the revised Standard Certificate of Birth, a document that may well be considered to be the last word in standard blanks (at least for ten years). Yet I find that a large percentage of the doctors and midwives of the state of Kansas do not fully comprehend all of its sections, especially that enumerated as item 20. I agree that the questions of that item are clear enough to many of us. But "the proof of the pudding is in the eating." As I examine the certificates coming in from doctors and midwives, I have ample ocular evidence that it is not clear to them. Item 20a asks, "Born alive and now living?" They reply, "Yes," or they say "4 A. M.," or they even say in some cases, "Fine baby," but only those who read the whole section carefully reply by giving the number of children of this mother who have been born alive and are now living.

Of course, you will rise in just anger and say, "Call the blockheads to time. Make them read the certificate." Granting that your position is absolutely correct, still I do not feel inclined to persist in the job longer than is necessary. My point takes me back to the original statement that there will always be the possibility that the person called upon to fill out these blanks may be one who is of small intellect and little learning, and that it is my business to present to such a person blanks and forms couched in the very simplest language. In Kansas we are, therefore, settling the question by making it so plain that the dullest mind must comprehend. In our new blanks we are printing the words, "Num-

ber of children," to preface each of the divisions a, b, and c, of item 20, so that the item 20a will read, "Number of children born alive and now living," and this, I think, will be sufficiently pointed to be perfectly clear to those who read only in words of one syllable.

My object in using this as an illustration is to point to the fact that even standard forms may need to be brought into conformity with local requirements, and to stress the fact that the controlling factor is not so much whether the blank is clear to your own trained intelligence, as whether it gets accurate returns from those who are to fill it.

I think that a registrar has but one way to satisfy himself that all of his blanks and forms are producing satisfactory returns, and that is by personal inspection. My state has supplied its local registrars for many years with books in which to keep their local record of births. Each book contains a dozen sheets of a printed blank that serves to maintain a very serviceable local record of births. It is, on the whole, an admirable form. I do not know where we got it, but my guess is that we copied it from some older eastern state which, in turn, had copied its blank from one of the old countries. Under the general heading, "Date of birth," it has three ruled columns in the following order: "Day," "Month," "Year." It was not until I made an extended trip examining the books of the local registrars that I discovered anything wrong with that blank. Then I found that every new registrar had infinite trouble getting used to writing in the order named. The common order of writing a date in our country is not 18th November, 1921. It is November 18, 1921. When we prepare our blanks these things should have our consideration. Our registrars are not trained clerks. It is foolish to try to inflict upon them old styles that do not prevail in their own community. It is our business to make records easy for them to keep. A personal check of some of our returns might disclose some of the points that are giving difficulty.

The blanks must follow along the lines of least mental resistance of the masses. We may argue that the masses are not right, but it is a poor argument. Our mission is to get certain data for use in vital matters, and to get those data as accurately as possible. In gathering them, we must use the forms of expression that the people understand.

In our local forms prepared for our own use, we find simplicity of prime importance also. In my state we have long since ceased to send any certificates back for completion or correction. Writing letters about every deficiency is too costly. We experimented with many blanks and found the simplest the best. We simply reproduced the items of the certificate on a printed blank and prefaced this with a line to the effect that the certificate named required completion or correction as to items checked in red. This direct and simple statement brings as near one hundred per cent of satisfactory responses as can be hoped for.

Not only should all blanks and forms be as simple as possible, but they should also be stripped of every unnecessary item, and a great effort should be given to make allowance for sufficient space on each line without crowding. While this is true of every part of the record, it is especially true where proper names are to be written. Names are of all lengths. They must often be written by those who have no clerkly skill. Such a person may write with reasonable legibility if sufficient space is allowed in the blank, but let him try to crowd his letters into a limited space and he gives you little but a confused blur of cryptographic symbols. Here again I am urging the importance of giving especial recognition to the limitations of the untrained and inexperienced.

On the whole, I am content to make this the one point of this paper—prepare

your blanks in such a way that they shall be adapted to the *minimum* intelligence of your constituency. Make them as simple as possible. Make them legible. Put them in words of one syllable. Adapt them to local needs. Make them so that "he who runs may read," and also write. If you present them so poorly that the important records sought are rendered inaccurately, the failure lies with you rather than with the individual of eleven or twelve years' mental age upon whom the burden was placed of attempting to fit data that he did not appreciate into a form that he did not comprehend.

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A SIMPLE METHOD FOR ANAEROBIC CULTIVATION IN PETRI DISHES

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Read before the Laboratory Section of the American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 15, 1921

ALL the methods so far proposed for anaërobic plate cultures labor under at least one of the following difficulties: 1. Require special apparatus. 2. Are messy and time consuming. 3. Do not give sufficiently high limits of anaërobiosis. 4. Colonies are difficult of access.

The method to be described is a modification of the technic employed by us in studies on the atmospheric requirements of bacteria.[1]

Simple as it is, we have found no description of it in the literature and therefore venture to present it in the hope that it may prove of some value to other investigators dealing with anaërobic microörganisms. The procedure consists in taking two tops or two bottoms of ordinary Petri dishes (sterile) and placing them edge to edge as shown below in Fig. 1. (We prefer to use dishes 15 mm. deep.)

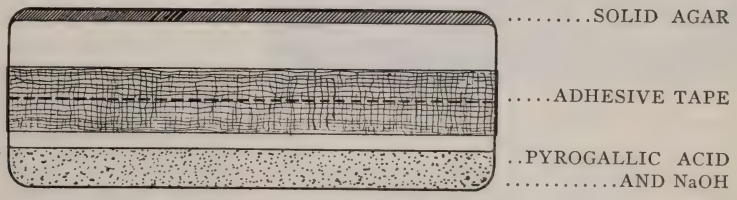


FIG. 1. PETRI DISHES ARRANGED FOR ANAEROBIC CULTIVATION

Obviously, uniformity in the diameter of the dishes is desirable. When making large numbers of cultures in this way, it is advisable to sterilize a number of Petri dishes in the usual way. Then pair off the tops and bottoms immediately before pouring the medium. The culture or medium is poured into the lower Petri dish. After it solidifies, it may be streaked in the usual manner. The paired dishes are then turned upside down and about 5 to 10 gm. of dry, powdered pyrogallic acid is placed in the lower half. About 30 c.c. of a 5 per cent solution of sodium hydroxide is then quickly poured over the pyrogallic acid. Immediately a strip of surgeon's adhesive plaster is placed around the equator uniting the halves. The "capsule," as we call it, is then incubated and treated with no more

respect than an ordinary aërobic plate. It is evident that such plates make it easy to count numbers of anaërobes, and simplify the purification of anaërobic cultures, streaking exudates, etc.

That the conditions are anaërobic is proved by the growth of the more common anaërobes and by success in culture of *B. Tetanus* and *B. Putrificus,* strains of which were kindly furnished by Dr. C. Krumwiede and Mr. G. F. Reddish, and which were said to be the most sensitive to oxygen of any cultures in their collection. It will be seen that in Figure 2, *B. Tetanus* has been streaked and there is good growth along the streak as well as differentiated single colonies well adapted for fishing. In Figure 3, the growth of *B. Putrificus* has radiated out from a small lump of egg meat medium which has been transferred from the original culture in the plate at the right, and has grown well along the streak in the plate at the left. Cultures may be kept under anaërobic conditions in this way for a long period of time, by simply varnishing the adhesive plaster.

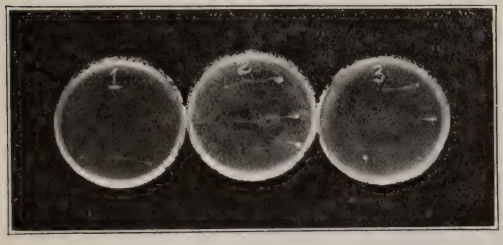


FIG. 2. B. TETANUS

Legend

1. 20 *gm. pyrogallic acid*
2. 10 *gm. pyrogallic acid*
3. 5 *gm. pyrogallic acid*

Note: Glass etched on plate No. 2

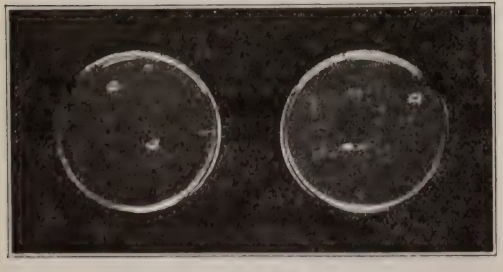


FIG. 3. B. PUTRIFICUS

The test of power to reduce methylene blue as an indicator of anaërobiosis recommended by Gates[2] and others was also carried out successfully. 0.5 c.c. of a 1 per cent aqueous solution of methylene blue is added to 10 c.c. of 2 per cent dextrose agar (PH 7.8) the medium becomes completely decolorized in the "capsule." Upon opening the "capsule" and permitting the introduction of oxygen, the blue color returns, only to disappear when anaërobiosis is reëstablished. This is supposed to be one of the most delicate criteria for the determination of anaërobiosis, as indeed it is.

Upon culturing *B. Tetanus* for the first time, no growth was obtained by this method. The culture seemed above reproach and the only plausible explanation was to the effect that the presence of methylene blue had an inhibiting influence on the germination of the spores, and the reproduction of the vegetative forms. On repeating the test and omitting the methylene blue, no growth appeared. It was noticed, however, that the agar in these tests seemed to be very dry. Thereupon the test was repeated, using three different amounts of pyrogallic acid, namely, 5, 10 and 20 gm., respectively. *B Tetanus* then grew very nicely, but in inverse ratio to the amount used. See Fig. 2. In other words, with small amounts of pyrogallic acid good growth was obtained, while with a large amount no growth was visible. Evidently, the strong dehydrating effect of the pyrogallic acid was responsible for the earlier failures. The agar medium has a high water vapor tension, while the pyrogallic acid solution has a very low water vapor tension due to its high degree of concentration. We were led to a consideration of this important factor by virtue of the previous studies dealing with water vapor tension. Consequently in working towards an equilibrium the agar yields its moisture to the pyrogallic acid solution which is of lower water vapor tension.

As a means of lessening this difference in water vapor tensions, 2 per cent gly-

cerine was added to the agar medium. Glycerine, as we have shown,[1] is a strong dehydrating agent. The good growth of *B. Tetanus* finally obtained, therefore, has a particular significance.*

1. Nicholas Kopeloff and Sterne Morse. Studies on atmospheric moisture requirements of bacteria. I. Water vapor tension. Proceedings of Society for Experimental Biology and Medicine, 1921, 308-310.

2. Gates, F. L. and Olitsky, P. K. Factors influencing anaërobiosis with special reference to use of fresh tissue. The Journal of Experimental Medicine, 33, 1921, 51-68.

SUMMARY

The method described for the anaërobic cultivation of bacteria in Petri dishes is:

1. Simple.
2. Inexpensive.
3. Efficient in establishing anaërobiosis.
4. Easy to manipulate.
5. Uses stock apparatus.

*We wish to thank Mr. E. J. Kennedy for his assistance.

REPORT OF THE COMMITTEE ON BATHING PLACES

Read before the Sanitary Engineering Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 17, 1921, and adopted by vote of the Section.

THE Committee on Bathing Places presents herewith its third progress report. At the San Francisco meeting a discussion of our second report indicated the desire of the members present that this Committee obtain definite information as to the methods employed at different bathing places for washing and disinfecting suits and towels, and also, that an investigation be made to determine the extent and prevalence of infections which may be conveyed by means of swimming pools and other bathing places.

An endeavor has been made to obtain definite information along both of these lines during the past year. While the Committee has obtained much valuable information concerning the methods employed in handling suits and towels, this information is as yet not sufficiently complete for presentation in this report.

We have attempted to obtain information as to the extent and prevalence of diseases which may be conveyed by means of bathing places from a large number of physicians whom we believed might be in a position to furnish information of value. To this end a questionnaire was prepared in which the following questions were asked:

1. Do you consider public bathing places (swimming pools, beaches, etc.) an important factor in the transmission of diseases?

2. If so, what diseases?

3. State briefly circumstances regarding any particular cases of disease with which you have been connected, which you feel reasonably certain were contracted at a bathing place.

   a. From the water.

   b. From the suits and towels.

4. Do you consider the method and care of laundering bathing-suits and towels of greater or less importance than the quality of swimming pool water, in so far as disease transmission is concerned?

5. Do you consider that the possibility of drowning or injury due to falls or collision at a swimming pool is of greater or less importance than the transmission of infection?

6. Following is a list of infections sometimes claimed to be readily transmissible by swimming pool water or bathing suits. State briefly your opinion as to the importance or non-importance of these diseases in the consideration of sanitation of bathing places.

   Typhoid fever
   Gonococcus infection
   Syphilis
   Ringworm
   Dysentery
   Colds
   Pink Eye
   Boils

In all about 2,000 copies of this questionnaire were sent out by the several members of the Committee. Owing to a slight misunderstanding among the dif-

ferent members as to the procedure to be followed, there was some difference in the list of persons in the different states to whom this questionnaire was addressed. In the eleven states north and east of Washington, D. C., the questionnaire was sent to all physicians specializing in ear, eye, nose, throat and skin diseases; in the other states it was addressed to all eye, ear, nose and throat specialists and health officers. Owing to the slight discrepancy in the list of persons from whom questionnaires were obtained in different parts of the country, the results are perhaps not strictly comparable. It is the intention of the Committee to send out additional questionnaires to the health officers and skin disease specialists who were omitted in the first canvass, and in a later report to submit a full detailed tabulation of the information obtained from the various sources.

A total of 627 replies to our questionnaires had been received from 41 states and the territory of Hawaii up to the time this report was prepared. In a number of instances physicians stated that they did not feel competent to express an opinion on any of the points enumerated. Furthermore, many physicians answered certain questions, but stated frankly that their experience did not qualify them to answer the remaining questions. In all, 571 replies were received in which one or more of our questions were definitely answered. Because of the large and complicated mass of information received the Committee has not yet, in the limited time available, been able to thoroughly classify and tabulate it. We feel, however, that the information already obtained is of such great importance that we present a preliminary summarization of the replies as follows:

In reply to our question 1, enumerated above, 550 opinions were expressed. Of these, 384, or 70 per cent, were to the effect that bathing places were an important factor; 143, or 26 per cent, were to the effect that they were not important; while 23, or 4 per cent, of the physicians were in doubt.

In reply to our question 4, 500 opinions were expressed. Of these, 190, or 38 per cent, considered the quality of water the most important consideration; 156, or 31.2 per cent, considered the sanitation of suits and towels was more important; and 154, or 30.8 per cent, were to the effect that both were of equal importance.

In reply to our question 5, 439 opinions were received. Of these 283, or 65 per cent, considered danger of infection the most important consideration; 114, or 26 per cent, considered danger of drowning or accident more important; and 42, or 9 per cent, considered both were of equal importance.

In question 6 the physicians were asked to express an opinion on the importance or non-importance of bathing places as means of transmitting certain diseases frequently attributed to them. The tabulated results of expressed opinions are shown in the following table:

	Number of definite opinions expressed	Number expressing no opinion	Number of physicians expressing definite opinions as to importance of bathing places. Important		Not important	
			Number	Per cent*	Number	Per cent*
Typhoid	277	301	153	55	124	45
Gonococcus	293	285	155	53	138	47
Syphilis	278	300	116	42	162	58
Ringworm	256	322	152	59	104	41
Dysentery	240	338	113	47	127	53
Colds	318	260	223	67	95	33
Pink eye	324	254	249	77	75	23
Boils	291	287	181	62	110	38

*Represents percentage of number of definite opinions expressed.

Our question 2 asked what diseases the physician considered might be transmitted, and in question 3 he was asked to report cases of different diseases he had observed in his practice which had been definitely traced or might be attributed to water, or suits, or towels at a bathing place. The answers to this question have brought out a surprising amount of information, which is shown in detail in the following table:

	No. of physicians who consider disease important	No. of physicians reporting cases observed
Eye Infections		
Non-specified and miscellaneous	26	9
Pink eye	249	73
Conjunctivitis	136	77
Opthalmia	3	3
Pneumococcus infections	3	2
Trachoma	14	5
Ear Infections		
Non-specified and miscellaneous	50	37
Otititis Media	145	129
Mastoiditis	27	19
Meningitis	5	5
Otomycosis	1	1
Nasal Infections		
Non-specified and miscellaneous	31	15
Colds	223	35
Coryza	6	3
Rhinitis	25	24
Sinus infections	72	71
Ethmoiditis	1	1
Throat Infections		
Non-specified and miscellaneous	15	8
Tonsilitis	21	13
Bronchitis	5	3
Pharyngitis	7	6
Laryngitis	4	3
Skin Infections		
Non-specified and miscellaneous	36	9
Boils	182	25
Furunculosis	42	32
Impetigo contagiosa	27	19
Molluscum contagiosum	4	4
Dermatitis venenata	3	1
Fungoid infections	4	2
Eczema	9	9
Scabies (Itch)	18	11
Ringworm	152	24
Pediculosis	6	5
Venereal Diseases		
Gonococcus infections including eyes	155	31
Syphilis	116	11
Gastro-Intestinal Diseases		
Non-specified and miscellaneous	3	1
Typhoid and paratyphoid	155	18
Dysentery	113	7
Miscellaneous Diseases		
Influenza	5	2
Tuberculosis	6	6
Lobar pneumonia, articular	1	
Rheumatism, pyorrhoea	1	
Alveolarus, pituriasis	1	

The most significant and important information obtained from our replies has been reports of epidemics of various diseases which, from the information supplied by the reporting physicians, may be considered reasonably authentic. Seven different physicians report epidemics of conjunctivitis, and 6 others epidemics of skin diseases, 4 of these being epidemics of furunculosis, 2 of impetigo contagiosa, 2 of molluscum contagiosum and 1 of eczema. Two physicians reported epidemics of middle ear infection which, from the history submitted, were undoubtedly attributed to infection of the water at the bathing places. Two other physicians reported epidemics of tonsilitis and pharyngitis, and one reported an epidemic of nasal sinus infection in which all evidence points to bathing water as the origin. One of the members of the Committee also reports an epidemic of typhoid fever in a camp for boys which was unquestionably traced to bathing in polluted water.

It is very seldom that fatal cases of any disease outside of typhoid, perhaps, have been attributed to bathing place infection. One physician, however, reports a fatal case of mastoid infection and 4 other physicians report a number of fatal cases of meningitis following infections of the nose or ear passages.

The list of diseases reported above include a number for which there are at present no methods for detection in water. It seems to your Committee that such methods are greatly needed, in order that the occurrence of the causative agents of these diseases may be detected in water and the effectiveness or non-effectiveness of our methods of sanitary control demonstrated. We would, therefore, respectfully recommend that the question of devising such methods be referred to the Laboratory Section for consideration.

GEORGE W. SIMONS, JR.,
Chairman.
RALPH HILSCHER.
HARRY F. FERGUSON.
STEPHEN DE M. GAGE.

CORRELATION OF STREAM POLLUTION CRITERIA FROM STUDIES OF THE NAUGATUCK AND HOCKANUM RIVERS IN CONNECTICUT

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Read before the Sanitary Engineering Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 17, 1921

INVESTIGATIONS of stream pollution have quite generally proceeded from complaints of nuisance either on account of their physical appearance or the odors arising from them. In determining the degree of pollution, the oxygen and bacteria in the river have come to be quite generally accepted as the best indices of pollution and the permissible pollution has been expressed in terms of sewage-contributing population as related to stream flow.

In the investigations on the Naugatuck and Hockanum Rivers, certain inconsistencies were encountered in getting satisfactory results from these criteria, and this paper discusses:

1. Physical condition of rivers as shown by the correlation of observed odors and unsightliness, with results of chemical and bacteriological surveys.

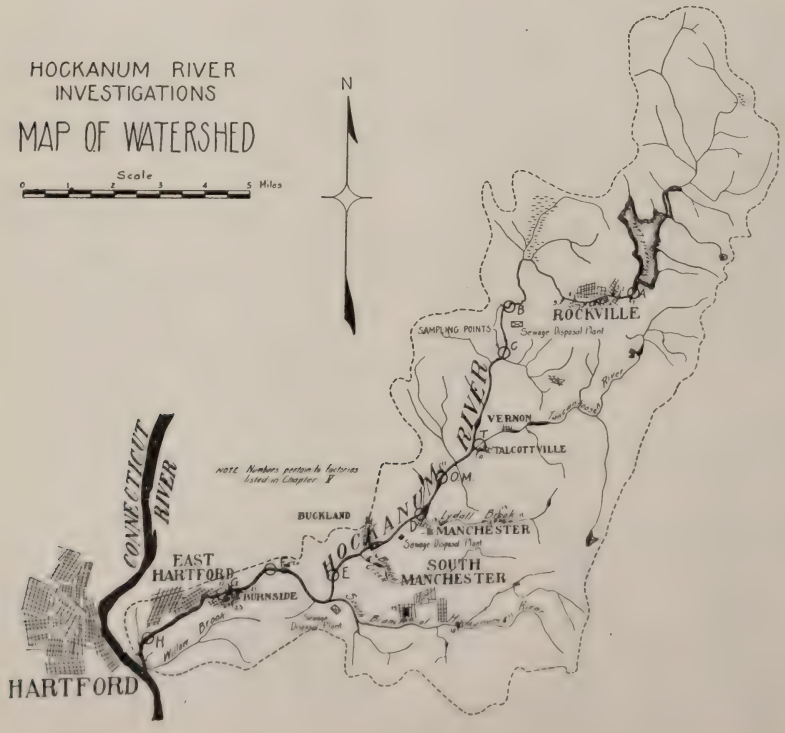
2. Inhibitory effect of industrial wastes on the bacterial content of rivers.

3. Limitations of determinations for dissolved oxygen and dissolved oxygen demand as criteria of pollution.

4. Limitations in application of stream flow in second feet per 1,000 contributing population.

DESCRIPTION OF RIVERS

The Naugatuck River, starting at Torrington, is formed by several small streams which have their sources in the hills of Norfolk and Winchester. From



Torrington to Derby, where it flows into the Housatonic River is a distance of 39.6 miles, and between these cities the river falls about 528 feet. This fall is broken by numerous dams built by factories which have located on its banks. From Derby to Waterville the valley is densely populated, the towns merge into each other, there is no marked break in density of population and pollution is quite noticeable. From Waterville to Thomaston and Thomaston to Torrington the density is less and the buildings and visible signs of pollution not so numerous. All of the towns are industrial in character, and about 143,000 people and 125 factories are contributing pollution in noticeable amounts above the mouth of the river at Derby. The critical points of pollution are below Torrington, Waterbury, Naugatuck and Ansonia.



The brass industry predominates but there are a number of large iron works, several rubber factories and a few textile mills. The estimated volume of wastes in gallons per 24 hours is as follows:

TABLE I

	Above Waterbury	At Waterbury	Below Waterbury	Total
Industrial	9,863,000	43,314,000	19,905,000	73,082,000
Domestic	3,700,000	20,000,000	6,675,000	30,375,000

The Hockanum has its source in Schenipsit Lake in the northwest part of Tolland and flows southwest about 27 miles, entering the Connecticut at East Hartford. The total fall is 575 feet and, like the Naugatuck, it is broken by numerous dams. The principal towns are Rockville, Manchester and East Hartford.

South Manchester, a model industrial town located on the South Branch, contributes wastes from a large silk mill, several paper mills, and the sanitary sewage of the entire town. Textile, silk and paper are the principal industries. The total estimated volume of wastes in gallons per 24 hours from all the towns is:

Industrial	Domestic	Total
8,000,000	1,740,000	9,740,000

The total contributing population is 42,000 and the number of factories contributing pollution approximately 25.

Both of these streams act as main drainage outlets to highly developed industrial communities. On the Hockanum some efforts have been made to relieve the pollution by building treatment works at the main sources of pollution but because of inefficient operation, lack of capacity and neglect, all have ceased for some time to be of any material benefit. On the Naugatuck some experimental

work has been done, but none of the towns have actually built any disposal works. The evidence of physical pollution is much more pronounced on the Naugatuck than on the Hockanum, and the correlation between observed conditions and results of chemical and bacterial analyses more definite.

SUSPENDED SOLIDS AND APPEARANCE

The index of physical pollution of the rivers as shown by the appearance correlated with turbidity is the amount of suspended solids.

Of the seventeen stations on the Naugatuck the correlation showed eight stations to be satisfactory, two of them being very good and six in fair condition; nine stations were unsatisfactory, two being doubtful and the remainder bad. The summary of the results from the summer averages was:

TABLE II

SUSPENDED SOLIDS

	Appearance Satisfactory					
	Clean			Fair		
	Max.	Min.	Mean	Max.	Min.	Mean
Naugatuck	7	4	6	13	5	10

	Appearance Unsatisfactory					
	Doubtful			Bad		
	Max.	Min.	Mean	Max.	Min.	Mean
Naugatuck	24	14	19	43	11	21

Of the ten stations on the Hockanum, three were satisfactory, five doubtful and two unsatisfactory. The summary, using in this instance the total solids and omitting one station where the dilution undoubtedly affected the results, was:

TABLE III

TOTAL SOLIDS IN HOCKANUM RIVER

Satisfactory Clean			Doubtful			Unsatisfactory Bad		
Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
95	48	69	164	104	139	171	148	159

In correlating the visual pollution of a stream with the results of the analyses, judgment must be exercised in applying the criteria for suspended solids; we must discriminate between a river discolored by dye wastes or clay carried in suspension and one carrying solids, such as feces, toilet paper and sewage fungus. Further, the putrescible matter might be in a finely divided state, in which case the appearance would be unobjectionable and we would have to depend on other results of the analyses.

The results of the summer averages on the Naugatuck River showed a definite classification and the correlation was clean cut, the average for satisfactory stations being 6 p. p. m. and for unsatisfactory 18 p. p. m., the division between the two classes coming between these two. When we consider the many factors which may affect the results, particularly the great amount of sedimentation in mill ponds, the feasibility of applying the criteria of suspended matter to a river as affecting its appearance is questionable. This determination, has, however, considerable value when estimating the amount of dilution required to make the condition of the river inoffensive.

ODORS

When we endeavor to correlate the results of the chemical and bacteriological survey with odors as noted from observation we get some very interesting developments. With slight variation all of the 17 stations on the Naugatuck excepting one fall into two classes, 4 satisfactory—no odors, and 12 unsatisfactory—odors. The results for the several determinations using in each case the summer averages were:

TABLE IV

SUSPENDED SOLIDS P. P. M.

	Satisfactory (No Odors)			Unsatisfactory (Odors Observed)		
	Max.	Min.	Mean	Max.	Min.	Mean
Naugatuck	7	4	6	43	11	18

TABLE V

DISSOLVED OXYGEN
PER CENT SATURATION

	Satisfactory (No Odors)			Unsatisfactory (Odors Observed)		
	Max.	Min.	Mean	Max.	Min.	Mean
Naugatuck	101	88	96	71	50	63
Hockanum	96	87	91	52	29	40

TABLE VI

DISSOLVED OXYGEN DEMAND
P. P. M OXYGEN SAMPLES
INCUBATED AT 20° C. FOR 48 HRS.

	Satisfactory (No Odors)			Unsatisfactory (Odors Observed)		
	Max.	Min.	Mean	Max.	Min.	Mean
Naugatuck	4.1	2.6	3.6	5.2	2.7	3.9
Hockanum	2.1	1.2	1.7	4.2	2.7	3.6

INHIBITING EFFECT OF CERTAIN WASTES

In sewages, the proportion of acid forming bacteria to total bacteria growing at body temperature is quite high, often being as much as 50 per cent. Consequently, where sewage is discharged into streams affording low dilution, we would expect the proportion of acid formers to total bacteria to be quite high. This, however, was not the case for either

the Naugatuck or Hockanum Rivers, the proportion being exceedingly low, indicating selective germicidal action by certain wastes. Also below the points of maximum sewage discharge we would naturally expect very high total counts. Actually, however, at most points on the Naugatuck and Hockanum Rivers, considering existing conditions, the counts were abnormally low. This, too, would indicate the presence of germicidal wastes.

TABLE VII

YEARLY AVERAGE TOTAL BACTERIA
B. Coli Per C.C.

	Naugatuck		Hockanum		
	Total Bacteria	*B. Coli*	Total Bacteria	*B. Coli*	
	Agar 20°—48 hrs.				
Station 2	123,000	289	877,000	17,600	Station C
Station 7	116,000	113	246,000	7,400	Station E
Station 8	302,000	164	150,000	2,200	Station F
Station 10	677,000	148	197,000	2,500	Station G
Station 16	479,000	121	102,000	396	Station H

The inhibiting effect of acids and copper salts has been noted in other investigations, particularly during the experiments on the New Haven sewage. In this connection the results on these rivers are quite interesting.

On the Naugatuck River, above Station 2, copper bearing wastes from the several factories in Torrington, as well as the entire domestic sewage of the town are discharged into the river. Both total counts and *B. Coli* were much lower than would be expected. Station 8 on the Naugatuck River, below the Waterbury outfall sewer, while showing an increase over the previous station, is still abnormally low when the amount of sanitary sewage contributed between the two stations is taken into account. This is rather surprising because the Mad River with its heavy pollution and also the Waterbury principal trunk sewer enter the Naugatuck between Stations 7 and 8. Evidently the sewage pollution between these two stations was either not concentrated to such an extent as to markedly affect the bacteria, or germicidal action of industrial wastes was quite pronounced. The latter would appear to be more probable considering the many factories contributing germicidal wastes at Waterbury.

At Station 10 on the Naugatuck, where the copper wastes from Waterbury had settled out, total count and *B. Coli* increased greatly. This continued at the stations down the river until Station 16, below Ansonia, was reached. Here the effect of the brass mills was shown in the decrease of total bacteria and *B. Coli*, particularly during low flows when the concentration of these wastes was greatest. These same general effects were also noted on the Mad River, which was almost always acid and where 7.8 parts per million of copper were found in November, 1919.

The inhibiting action of germicidal wastes on the Hockanum was, perhaps, not quite as pronounced as on the Naugatuck. Above Station C, the effluent from the treatment works for the Rockville sewage enters the river. This effluent, however, is but little better than the raw sewage which contains wool scouring, dyeing and gas house wastes in addition to the domestic sewage of the town. At times at this station as high as 4,000,000 total bacteria and 100,000 *B. Coli* per c. c. were recorded. Apparently the wastes did not affect the bacteria materially at this point. In a general way, this station may be compared with Station 2 on the Naugatuck, as each is below the first city contributing pollution to the rivers. It is interesting to note that though the population of Torrington is about 22,000, while that of Rockville is only 9,000, the bacterial counts for Station C were many times greater than for Station 2.

Station F on the Hockanum is just below the entrance of the South Branch which receives the pollution from a large silk mill and several paper mills. In spite of this it shows a reduction in bacteria from the previous station. Other determinations, such as organic nitrogen, free ammonia and oxygen consumed indicating pollution, are noticeably greater at Station F than Station E, and the lower bacterial counts at Station F might be due to the germicidal action of dye liquors from the silk mill.

The decrease in bacteria from Station G to H may possibly be due to dilution from tidal action of the Connecticut River.

These results would indicate that copper bearing wastes and possibly compounds of zinc do have some germicidal effect upon the oxidizing bacteria and

that the dyes, mordants, metallic salts and bleaching powders used in textile and paper industries have a similar influence. This apparently affects the biochemic reactions, particularly the dissolved oxygen and dissolved oxygen demand.

When the flow of the river is low and the concentration of wastes greatest, the effect, particularly at the points of discharge, is beneficial. When these wastes have had an opportunity to settle out, bacteria and biochemic reactions act as usual and offensive conditions are created.

LIMITATIONS OF DISSOLVED OXYGEN AND DISSOLVED OXYGEN DEMAND CRITERIA

The dissolved oxygen and dissolved oxygen demand have generally been considered the best indices of the pollution of a stream. Results of these determinations on these two rivers in particular, would appear to upset this assumption.

TABLE VIII

YEARLY AVERAGES

Naugatuck			Hockanum		
	D.O.	D.O.D.*	D.O.	D.O.D.*	
Station 2	79%	72%	62%	63%	Station C
Station 7	78	54	88	35	Station E
Station 8	76	65	70	68	Station F
Station 1	96	31	92	18	Station A

*Dissolved oxygen demand here expressed as percentage of dissolved oxygen in water.

Station 1 on the Naugatuck receives only slight pollution and Station A at the dam on Lake Schenipsit on the Hockanum is practically unpolluted. At Station 1 dissolved oxygen was almost always at saturation point and the algae and microscopic plants were characteristic of clean streams. During July and August, 1918, the dissolved oxygen demand was over 50 per cent. At Station A the dissolved oxygen was usually high and dissolved oxygen demand correspondingly low.

Station 2 is one-half a mile below Torrington sewer outfall on the Naugatuck, and Station C is below Rockville on the Hockanum. At Station 2 the Naugatuck River is sluggish and deposits of organic wastes considerable. The lowest dissolved oxygen was in July, 1918, 1.8 p. p. m. or 22 per cent, whereas in March 1919, it was 13.4 p. p. m. 7°C. or 110 per cent. During the summer it ran from 300 per cent to 800 per cent on individual samples. At Station C the Hockanum river receives the effluent from the Rockville disposal plant. At the preceding Station B the initial oxygen during the summer was 8.2 p. p. m. or 92 per cent, while at Station C it was 2.7 p. p. m. or 29 per cent.

Station 8 is just below Waterbury outfall sewer on the Naugatuck and Station F on the Hockanum is below the entrance of the South Branch into which the wastes from South Manchester empty. At Station 8 the lowest dissolved oxygen was 40 per cent in August, 1918, which in spite of increased amount of sewage was only 2 per cent less than at the previous Station 7. The current at this station is swift, and large boulders in the bed of the river cause ripples which afford some reaëration. Odors were not particularly noticeable at this point and the dissolved oxygen demand varied from 5 per cent to 300 per cent, during periods of low flow averaging 100 per cent. At Station F odors were quite prevalent. The dissolved oxygen was very much reduced from the previous station in both summer and yearly averages while the dissolved oxygen demand showed little change in summer but considerable increase in winter.

These variations in the dissolved oxygen and dissolved oxygen demand determinations are attributed to the effect of the industrial wastes on the decomposition of organic matter. The wastes act as germicides and reduce the number of bacteria which has a direct effect on the organic matter and oxygen present. The putrefaction processes at the point of discharge are retarded, the loss of oxygen is decreased, and consequently odors are less noticeable and the condition of the stream improved. On the other hand, high dissolved oxygen was found in the Naugatuck River, where the conditions were so offensive as to lead one to expect quite the contrary.

The antiseptic effect of the wastes was most marked at the point of discharge. Where conditions were favorable they settled out quickly or were carried by the stream in a colloidal or suspended form as shown by the results at Station 10. At this station the large increase in the bacterial count agreed much better with the

observed condition of the river than did the chemical results. The alkalinity undoubtedly had some influence. We know that, in general, oxidizing agents act more powerfully in the presence of acids and since the germicidal properties are in part due to the oxidizing power, we would expect greater oxidation with an acid water than with an alkaline one. This is partly confirmed by the results on the Mad River which was usually found to be acid and the dissolved oxygen much higher than would be expected from observed conditions. The effect of the volume of water flowing in the river was noticeable, particularly on the Mad River and below Ansonia and Derby. Low flows evidently tend to concentrate the wastes and affect the results and this was shown in the analyses for the summer months.

LIMITATIONS CRITERIA STREAM FLOW

In applying the criteria of flow in second feet per 1,000 sewage-contributing population, the fact is often lost sight of that what we are actually seeking is the reduction of the polluting constituents of wastes to an amount which the volumes of water will take care of without creating offensive conditions. We have, in fact, been fixing limits of permissible amounts of polluting constituents but expressing them in terms of stream flow. In this connection it is just as desirable that the chemical and bacteriological analyses should extend over a long period as it is that the stream flow records should. Indeed, it is perhaps more so because, while some estimate of the variations in flow could be made from records of similar watersheds, comparison of rivers used for disposal of wastes by cities and towns of similar domestic and industrial character would not give a reliable estimate of amount and character of the pollution.

In fixing any figures for stream flow per 1,000 population and resulting dilution, the variation in the composition of the sewage is important. The composition of sewage is affected by habits of the contributing population and nature of the industries in which they are engaged. Evidently the sewage from large industrial centers of Europe is much stronger than that from the manufacturing cities of New England, because the per capita consumption of water is much less. But the consumption per capita is not nearly as uniform in New England cities as it is abroad, and this introduces another factor of uncertainty when attempting comparisons. This is clearly shown when we compare the sewage from the Naugatuck Valley with average of other American manufacturing cities in the following table:

TABLE IX

COMPARISON OF NAUGATUCK VALLEY SEWAGE WITH AVERAGE SEWAGE FROM AMERICAN MANUFACTURING CITIES

	Average Naugatuck Sewage p. p. m.	Average Sewage From American Manufacuring Cities, p. p. m.
Total Organic Nitrogen	10.5	24.1
Suspended Solids	91.0	450.
Free NH_3	11.4	26.5

The main polluting constituents are all very much less in the former than in the latter. The consumption of water in the Naugatuck Valley for both domestic and industrial purposes is about 300 gallons per capita, and these differences can undoubtedly be largely attributed to this. There are, however, other agencies which affect the composition of sewage, particularly from industrial centers, such as the acidity or alkalinity of the wastes and degree of purification, if any, which they undergo. It is also difficult to determine to what extent self purification eliminates contributing population, and for any one point on the stream what part of the population on its contributing watershed should be excluded.

For example, upon the Naugatuck the effect of sewage-contributing population of Torrington and above, 22,000, disappears almost entirely at Station 3, which is 5 miles below the sewer outfall. It, therefore, should not be included in considering stream flow required at Station 8. Above Station 8 the population of Thomaston, Waterbury, Waterville and Watertown is 101,000 and the population between Thomaston and Station 3 is 4,000. This relatively small percentage of the total population would affect the results at Station 8 only slightly whether it was included or excluded.

On the stretch from Rimmons Pond to Station 8 the contributing population is 16,600. What proportion of this and of the population of Waterbury, Waterville

and Watertown should be included? What allowance should be made for several ponds which afford opportunity for settlement for the antiseptic wastes which affect the purification, assisting it in some cases and retarding it in others? Some of the industrial wastes contain large amounts of polluting organic matter, still others scarcely any, and manifestly the whole volume of industrial wastes should not be included. The number of factors and their varying effects on the condition of the river complicate the problem exceedingly and we get widely varying results, depending on what assumptions we start with.

The following table shows the average flows and flow for the low six months of the river at Derby, where it joins the Housatonic and below Waterbury and Torrington:

TABLE X

FLOWS OF NAUGATUCK RIVER

	Derby	Waterbury	Torrington
Average Maximum	835 Sec. Ft.	555	148
Average Minimum	347 " "	230	62
Average Mean	545 " "	362	97
Low Six Months	130 " "	82	22

In Table XI is shown the total volume of wastes and the proportion of industrial and domestic wastes for the entire stretch between Derby and Torrington and also for the stretches between Derby and Waterbury, and Waterbury and Torrington.

TABLE XI

VOLUME OF WASTES

	Derby to Torrington. Gals. per 24 hrs.	Derby to Waterbury. Gals. per 24 hrs.
Industrial Wastes	73,082,000	63,219,000
Domestic Wastes	30,375,000	26,675,000
Total Wastes	103,457,000	89,894,000

From these tables the dilution factors in the next tables are derived:

TABLE XII

DILUTION RATIO BELOW WATERBURY

Flow	Waterbury to Watertown: Industrial	Domestic	Combined
Maximum	6.7:1	15.1:1	4.7:1
Minimum	2.8:1	6.3:1	1.9:1
Mean	4.4:1	9.9:1	3.0:1

Flow	Waterbury to Torrington: Industrial	Domestic	Combined
Maximum	8.3:1	17.9:1	5.7:1
Minimum	3.42:1	7.4:1	2.4:1
Mean	5.4:1	11.7:1	3.7:1

TABLE XIII

DILUTION RATIO BELOW DERBY

Flow	Derby to Torrington: Industrial	Domestic	Combined
Maximum	7.4:1	17.7:1	5.2:1
Minimum	3.1:1	7.4:1	2.2:1
Mean	4.8:1	11.6:1	3.4:1

Flow	Derby to Waterbury: Industrial	Domestic	Combined
Maximum	8.5:1	20.4:1	6.0:1
Minimum	3.56:1	8.5:1	2.5:1
Mean	5.6:1	13.3:1	3.9:1

TABLE XIV

DILUTION RATIO BELOW TORRINGTON

Flow	Industrial	Domestic	Combined
Maximum	10.6:1	25.8:1	7.5:1
Minimum	4.4:1	10.8:1	3.2:1
Mean	7.0:1	16.9:1	4.9:1

In the above tables the highly polluting industrial wastes are included with the domestic sewage, while the wastes noted as industrial are not of a seriously polluting nature and include waste waters used for boiler purposes as well as in manufacturing. The question of what wastes to include when calculating the dilution ratios is a very important one. If we include the industrial wastes as sewage, we find that for the entire river the mean average flow affords a dilution of only 3.4 to 1. If we exclude the industrial wastes the dilution is 11.6 to 1. Considering only the stretch of river from Waterbury to the mouth, the ratios are 3.9 to 1 if we include the industrial, and 13.3 to 1 if we exclude it. These examples show quite clearly the confusion which arises when it is attempted to apply the criteria for dilution and stream flow indiscriminately.

Throughout the entire period of the investigation it was noted that conditions at Station 4 just below the entrance of Lead Mine Brook, both from observation and analytical results, were quite generally satisfactory. If the polluting ingredients at the critical points of the river lower down could be reduced to the same amounts for yearly and summer averages as were obtained at Station 4, it is probable that all cause for objection would disappear. What volume of water would accomplish this? How does the dilution factor thus obtained agree with those obtained from volume of wastes? These are very pertinent when discussing criteria of stream flow per 1,000 contributing population.

Table XV gives average determinations for organic nitrogen, suspended solids and dissolved oxygen demand for Station 4 and stations below Torrington, Waterbury, Naugatuck and Ansonia. It also gives the percentage reduction required at these places to bring the above determinations to same average as obtained at Station 4. For purpose of comparison, the permissible amounts recommended by the British Royal Commission for these constituents and required reduction to bring the several stations to them are added to the table.

TABLE XV

Locations	Organic Nitrogen	Suspended Solids	Dissolved Oxygen Demand in 48 hrs.
Below Lead Mine Brook, Station 4	0.97	7.0	2.99
Royal Commission	*	25.0	4.00
Torrington	2.23	43.0	6.16
% Reduction Station 4	56.5	83.7	51.4
% Reduction Royal Com.		42.0	35.0
Waterbury	2.19	27.0	5.52
% Reduction Station 4	55.6	74.0	45.8
% Reduction Royal Com.		7.5	27.4
Naugatuck	1.45	13.0	3.92
% Reduction Station 4	33.1	46.0	23.7
% Reduction Royal Com.		0.0	0.0
Ansonia	1.25	12.0	3.53
% Reduction Station 4	22.4	41.0	15.3
% Reduction Royal Com.		0.0	0.0

*No limits recommended for this determination.

Table XVI shows the available stream flow and the flow required for the different stations.

The wide divergence in results of dilution ratios and stream flow required to reduce polluting constituents to any permissible limits is at once apparent from a study of these tables. For example, using suspended solids as a criteria it would require 23.35 second feet to effect a reduction which would make them comparable with Station 4, while at Station 16 it would only require 5.52 second feet, and the same applies to the other determinations of organic nitrogen and dissolved oxygen demand though the variation is not so great.

For the Naugatuck River it was assumed that if organic nitrogen and suspended solids did not exceed 1 and 10 p.p.m. respectively at any point, the condition of the river would be satisfactory. This would mean 3.85 second feet per 1,000 population, which is slightly more than one-half that required to bring all points to the same condition as Station 4.

Since storing the excess run-off will not afford sufficient dilution to make polluting constituents at critical points comparable with Station 4, and since the sewage from cities and factories must in any event be treated in such a manner as to keep the polluting constituents within certain limits, we felt justified in recommending this apparently low figure. On the Hockanum River 6 second feet would be required to reduce the organic nitrogen to 1 p.p.m.

Table XVII gives summer and yearly averages at satisfactory and unsatisfactory stations on the Naugatuck and Hockanum Rivers.

These results show conclusively that the stream flow second feet per 1,000 population varies with composition and distribution of the sewage and that in applying this criteria without taking these into consideration, the results are apt to be very misleading. Increase in flow from storage of excess run-off necessary to make conditions satisfactory is usually not obtainable except under very favorable conditions and then only at very high cost. For the Naugatuck River, storage and equalization of the available flow would not produce satisfactory conditions.

CONCLUSIONS

As a result of the investigations on these rivers the following are advanced as being suggestive rather than conclusive.

Because of the variations in character of the solids and form in which they are present in the stream, their correlation with the condition of the river as shown by its physical appearance is not conclusive. This may be due in part to incomplete data, and more frequent analyses supplemented by extended observations of the condition of the river at time samples were collected might modify this conclusion.

Odors as connected with determination of suspended solids did not show a definite correlation, but this, as in the case of the physical appearance, may be due to incompleteness of data.

Acid and copper salts do effect the

TABLE XVI

Stream Flow Required to Reduce Polluting Constituents to Same Amounts as at Station 4

	Contributing Population Above Station	Available Stream Flow*				Required Stream Flow			
		Second Feet	Dilution Ratio		Second Feet per 1,000 Contributing Population	Second Feet	Dilution Ratio		Second Feet per1,000 Contributing Population
			Domestic Sewage	Combined Wastes			Domestic Sewage	Combined Wastes	
Station 2	20,900	81	13.1 to 1	4.0 to 1	3.88	—	—	—	—
Organic Nit. Standard.	—	—	—	—	—	186	30.0 to 1	9.2 to 1	8.9
Sus. Solids Standard.	—	—	—	—	—	497	73.2 to 1	24.7 to 1	23.8
Free NH_3 Standard.	—	—	—	—	—	185	29.8 to 1	9.2 to 1	8.9
Station 4	21,000	154	24.8 to 1	7.3 to 1	7.35	—	—	—	—
Org. Nit. Standard...	—	—	—	—	—	154	24.8 to 1	7.3 to 1	7.35
Sus. Solids Standard..	—	—	—	—	—	154	24.8 to 1	7.3 to 1	7.35
Free, NH_3 Standard..	—	—	—	—	—	154	24.8 to 1	7.3 to 1	7.35
Station 8	104,500	313	8.4 to 1	2.6 to 1	3.00	—	—	—	—
Org. Nit. Standard...	—	—	—	—	—	706	19.0 to 1	5.9 to 1	6.8
Sus. Solids Standard..	—	—	—	—	—	1210	32.5 to 1	10.1 to 1	11.6
Free NH_3 Standard...	—	—	—	—	—	819	22.0 to 1	6.9 to 1	7.8
Station 11	117,800	378	9.2 to 1	2.7 to 1	3.21	—	—	—	—
Org. Nit. Standard...	—	—	—	—	—	690	16.8 to 1	5.0 to 1	5.9
Sus. Solids Standard..	—	—	—	—	—	863	21.0 to 1	6.3 to 1	7.3
Free NH_3 Standard...	—	—	—	—	—	815	19.9 to 1	5.9 to 1	6.9
Station 16	143,000	462	9.8 to 1	2.9 to 1	3.23	—	—	—	—
Org. Nit. Standard...	—	—	—	—	—	715	15.2 to 1	4.5 to 1	5.0
Sus. Solids Standard..	—	—	—	—	—	793	16.8 to 1	4.9 to 1	5.5
Free NH_3 Standard...	—	—	—	—	—	1110	23.5 to 1	6.9 to 1	7.8

NOTE—*Computed from U.S.G.S. gauging records during period of investigation. The available stream flow during this period was about 10% less than the average stream flow as computed by comparison with the Croton and Wigwam watersheds.

TABLE XVII

STREAM POLLUTION CRITERIA—NAUGATUCK RIVER

Determination	Summer Averages						Yearly Averages					
	Satisfactory Stations			Unsatisfactory Stations			Satisfactory Stations			Unsatisfactory Stations		
	Max.	Min.	Aver.	Max.	Min.	Aver.	Max.	Min.	Aver.	Max.	Min.	Aver.
Dissolved Oxygen % Saturation	101	88	96	71	50	63	96	91	93	90	74	79
Dissolved Oxygen Demand 48 hours at 20°C. p.p.m.	4.1	2.6	3.6	5.2	2.7	3.9	3.4	2.4	3.0	6.2	3.5	4.5
Organic Nitrogen. p.p.m.	1.24	0.59	0.99	2.90	1.52	2.05	1.14	0.51	0.83	2.23	1.25	1.66
Suspended Solids. p.p.m.	7	4	6	43	11	18	—	—	—	—	—	—

HOCKANUM RIVER

Determination	Summer Averages						Yearly Averages					
	Satisfactory Stations			Unsatisfactory Stations			Satisfactory Stations			Unsatisfactory Stations		
	Max.	Min.	Aver.	Max.	Min.	Aver.	Max.	Min.	Aver.	Max.	Min.	Aver.
Dissolved Oxygen % Saturation	96	87	91	52	29	40	99	92	94	70	62	66
Dissolved Oxygen Demand 48 hours at 20°C. p.p.m.	2.1	1.2	1.7	4.2	2.7	3.6	2.5	1.7	2.0	5.2	4.2	4.6
Organic Nitrogen. p.p.m.	.59	.43	.49	1.51	1.35	1.43	.52	.46	.49	1.33	.95	1.14
Oxygen Consumed. p.p.m.	5.3	4.5	4.9	15.4	9.5	12.4	5.5	4.8	5.1	11.2	8.0	9.6
Total Solids. p.p.m	95	48	69	171	148	159	86	47	63	122	105	113

NOTE—For the Hockanum River many of the stations are classed as "doubtful". The averages for this class are not shown in the table Correlation for other determinations not shown as results were too erratic to give reliable indications of pollution.

bacterial content of rivers and apparently the wastes from the textile, paper and silk industries and possibly certain zinc products from the brass and copper industry have an inhibiting action, though not to such an extent as the acid and copper salts. This effect may be beneficial particularly at points of discharge in a river carrying large amounts of domestic wastes. The effect is most marked when the flow of the river is low and the concentration greatest.

On these two rivers the inhibiting effect of the wastes caused such wide variations in the determinations for dissolved oxygen and dissolved oxygen demand that their use as indices of pollution was not considered feasible. In rivers where the pollution is largely from domestic wastes and the effects of sedimentation negligible, action of the oxidizing agents proceeds as usual and these two determinations correlated with the suspended solids are then of great value as indices of pollution.

The application of the criteria of stream flow in second feet per 1,000 population should not be used without carefully considering the effect of self-purification, composition of the sewage and location of outfalls. Before fixing any rate, it may be desirable to select some point on the stream where conditions are known to be unobjectionable, and from the analyses and stream flow determinations compute the dilution and flow in second feet per 1,000 necessary at other stations to make them comparable. Having done this for critical points of pollution, adjustment can be made for a general figure for the whole river which will be much more likely to be correct than if it were attempted to divide the river into sections and arbitrarily compute the relation between stream flow and the population in each section.

□

Annual Meetings of Social Science Societies.—The public health occupied a prominent place in the discussions of the annual holiday meetings of the social science associations, held in Pittsburgh, December 27-31. The societies meeting there included the American Statistical Association, American Economic Association, American Political Science Association, American Sociological Society, American Association for Labor Legislation, American Farm Economics Association, and American Association of University Professors.

One entire session of the Statistical Association program was devoted to the topic of Population and Vital Statistics. Dr. Joseph A. Hill, of the Census Bureau, discussed some results of the 1920 census, with particular reference to population. Prof. James W. Glover, of the University of Michigan, the Bureau's chief expert in constructing the United States Life Tables, described the methods employed. Edgar Sydenstricker, of the United States Public Health Service, chairman of the Vital Statistics Section of the A. P. H. A., read a paper on "Specific Death-rates from Tuberculosis in the United States," which was discussed by Dr. William C. White, director of the Pittsburgh Tuberculosis Hospital. A paper by Dr. Otto Eichel, of the New York State Department of Health, which was read by Miss Jessamine Whitney, of the National Tuberculosis Association, traced the history of pandemic influenza, identified as the same disease through recurring cycles covering many centuries.

Later in the week a joint session of the Statistical, Economic and Labor Legislation Associations was held, at which Industrial Accidents was the topic. Papers were presented on "The Present Status of Workmen's Compensation in the United States," by E. H. Downey, of the Pennsylvania Compensation Commission, and on "Statistics of Industrial Accidents," by C. H. Verrill, of the U. S. Employees Compensation Commission.

During the Statistical meetings a statistical advisory group to the Mansfield demonstration of the National Child Health Council was formed with Dr. Louis I. Dublin as chairman.

At the Sociological Society meetings Prof. Rudolph M. Binder, of New York University, read a paper on "Health and Eugenics," in which he maintained that the most practical type of eugenics is that which improves personal and public hygiene. He urged that much of our present-day education could be eliminated to advantage, and the time gained devoted to training of our boys and girls for health. (K. M. G.)

DETROIT'S EXPERIENCE WITH UNDERNOURISHED SCHOOL CHILDREN

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Read before the Vital Statistics Section, American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 18, 1921

THE great war is undoubtedly responsible for renewed activity and interest in malnutrition. The disclosures of the draft board examinations, indicating the physical deficiencies of so many prospective American soldiers, has aroused this nation to the need for corrective measures. Detroit has awakened to her own problem. Last spring the city council placed in the budget of the health department twenty thousand dollars to be expended for the correction of nutritional defects in school children. The present paper is a recital of some of our experiences with this problem, together with an explanation of the program laid out for the current year.

THE NUTRITIONAL WORK OF PRIVATE AGENCIES

For some years various groups of the Federation of Women's Clubs have been serving milk and cracker lunches in the schools. For a part of last year 12,000 children in 40 of the 200 public and private schools were receiving the single milk lunch daily. This lunch, for which a charge of from one to three cents was made, was served to all or nearly all children in the schools reached, no distinction being made between the malnourished and those well nourished. This work was well received and did an immense amount of good in supplementing scanty diets, in teaching children to like milk and in acquainting the city generally with the need for nutritional education. This work was, of course, quite distinct from the open air classes for tuberculosis exposures conducted by the board of education and the department of health.

MEASURING THE RESULTS OF THE MILK LUNCH

In the early part of 1919 Mr. George A. Birkam, principal of the Barstow School decided to check the results of this work by carefully weighing two groups of children, one receiving the milk and cracker lunch twice daily and the other group receiving no supplementary feeding. Each group averaged about 11 per cent underweight. At the end of an eleven week period 90 per cent of the fed group had made better than a normal gain. In the control group only 40 per cent exceeded the normal gain. Stated somewhat differently, the fed group averaged a 25 ounce gain above the normal, while the control group averaged a loss of one ounce. The ages of these children varied from 6 to 14 years.

To observe the effect on scholarship, the children in both groups were given a ranking at the beginning and end of the period. The best pupil in scholarship was ranked one, the next best two and so on down the list. It is significant that in the fed group 54 per cent advanced their ranking, in the control group only 29 per cent advanced their ranking. This experiment was a convincing demonstration of the merits of supplementary feeding, or, should I say, sufficient food.

MEASURING THE RESULTS OF A SUBSTANTIAL HOT NOON LUNCH

In January, 1921, the Northwestern Women's Club undertook a nutritional demonstration in the Clinton and Everett Schools. In this instance the children were selected by the school medical inspectors, not because of underweight but because of visible evidences of under-

nourishment. The Clinton group averaged about 4 per cent and the Everett group about 6 per cent underweight. Both groups were visited in the home by the health department nurse and by a visiting housekeeper, with the object of interesting the parents in the nutrition of their children and of stimulating them to the correction of home deficiencies in nutrition and hygiene. Parents' meetings were also held at the school.

The Clinton group was furnished a substantial hot noon lunch in school for 13 weeks. The other group received no feeding in school. Neither group received supplementary milk lunches in school. In the fed group 69 per cent of the children made better than normal gain. In the control group only 32 per cent made better than normal gain.

It appears from this that whereas about one-third of the children can be encouraged to gain in weight by educational means alone, about two-thirds will gain if a hot noon lunch is served. The noon lunch stimulated more interest among parents. Thus 23 of the mothers in the fed group attended the meetings at the school one or more times, whereas only 7 parents of the control group came to the school meetings.

Comparing the results of 11 weeks of this noon lunch experiment with the 11 weeks of the milk lunch experiment, we note that the substantial noon lunch added 9.5 ounces more than the normal gain, whereas the milk lunch added 25 additional ounces. Furthermore, the control group with home nutritional instruction failed by 20 ounces to make the normal gain, whereas the control group without home instruction were one ounce below the normal. There were also a greater number of individual gains with the milk lunch than with the hot noon lunch.

As these groups were selected differently, one being underweight, the other visibly undernourished and only part of whom were underweight, we cannot interpret our results too freely. Of course the group receiving milk lunches was presumably getting more food in the course of the day—the lunches plus their three regular meals at home—and since the children in this group were appreciably underweight, we might expect them to respond more readily.

From an administrative standpoint the milk lunch plan is much easier to conduct, and judging from these two experiments its accomplishments are equally or even more satisfactory than the preparation of a hot noon lunch in school.

In view of the fact that no children with physical defects were excluded from these experiments, we may anticipate even better results for children who are originally free to gain.

Incidentally, we may add that the Clinton and Everett groups were kept under observation for 8 weeks after the school feeding ceased. In this time the previously fed group lost 4.3 ounces, the control group increased 1.6 ounces. Inasmuch as the home calls were continued during this later period we suspect that the falling off of both groups was due to a seasonal influence. It is entirely probable that the normal gain in weight is not the same throughout the year. In the case before us it would appear that children are much more prone to take on weight from January to April than from April to June. As the weights were taken in the nude, the question of lighter clothing in the spring is not a factor.

DETROIT CITY PROGRAM AGAINST MALNUTRITION

The fund of twenty thousand dollars appropriated by the city council for nutrition work was originally requested even in greater amount by the board of education. It was placed in the budget of the health department that it might be available to both public and private schools.

In putting this sum to work the health department is proceeding upon the assumption that the best known index of undernourishment is the relation of weight to height. Instead of dealing with those who are 7 per cent underweight as

recommended by Dr. W. R. P. Emerson of Boston, or 10 per cent underweight as recommended by Dr. Holt, we are selecting those children who are 15 per cent or more underweight. We use this standard because it gives us a group of workable size and also because the racial variations in weight are such as to reduce the significance of the 7 per cent underweight standard. In fact a United States white boy who is 7 per cent underweight might be even a trifle over weight if he were of some other nationality.

Last year the board of education weighed and measured all children in the elementary schools. Using the Wood Scale as a basis, it was found that about 20 per cent were 10 per cent or more underweight, and 6.7 per cent were 15 per cent or more underweight. This means about 10,000 Detroit children were in the 15 per cent underweight group. In September of this year all children were again weighed, and we are finding about 7.6 per cent to be 15 per cent or more underweight according to the Emerson Scale, which ignores age and recognizes merely a certain weight for each height. The extreme variations for individual schools is from 1.9 to 14.8 per cent of the total enrollment. In general the native white pupils in the more well-to-do districts are showing somewhat more underweight than those in the colored, Russian Jewish and Italian districts.

Our school medical inspectors on October 1 began the examination of the 10,000 underweight children. Those children without impairing physical defects will be immediately eligible for nutrition classes. Those with impairing defects will not be admitted until the defects are corrected. We recognize six impairing defects as follows: (1) A moderately or greatly enlarged thyroid. (2) a 20/40 vision or worse. (3) Pus discharge from ears. (4) Unmistakable evidence of mouth breathing. (5) A small size infected tonsil or any tonsil that is large enough to reach half way to the median line of the throat. (6) Ulcerated teeth. Those with other defects may enter the nutrition class. We are finding that about 53 per cent of the underweight group have one or more impairing defects.

A notice is sent to the parents of these children telling of the nutrition class and stating what defects are apparently present. Those without defects being eligible, the parents are asked to return a signed slip indicating their wish to have the child enrolled and promising on their part coöperation in the home as to ample sleep, regular meals, cool temperatures, etc., and also agreeing to pay, so far as they are able, 3 cents for each milk lunch.

The nutrition group is served milk and cracker lunches twice daily, the children coming from their rooms to a central meeting place. About 15 minutes is allowed for each lunch. No rest period follows. Once each week this class meets with the school nurse for instruction in diet and hygiene and for discussion of individual cases. Parents are expected to be present at these meetings. Every other week children are weighed and the weights plotted on individual charts.

This program is patterned after the Emerson nutrition class but varies from it in some respects. These classes are now being organized, and we are meeting with an encouraging attitude on the part of parents who wish their children enrolled. By the first of the year we hope to have from 70 to 100 nutrition classes under way. The supervision of the nutrition classes is in the hands of a trained dietician and nutrition worker.

CENTRAL COMMITTEE ON NUTRITION

The question has arisen as to the position of the private agencies now that the city has entered the field. As the amount appropriated is not sufficient to cover the entire work, we are asking the private agencies to continue their work but to confine the milk lunches to the underweight children. To make the combined work further effective, the health commissioner has appointed a central committee on nutrition, made up of representatives of the various groups interested in school feeding and also such

agencies as are interested in the professional aspects of nutrition, such as the Visiting Housekeepers' Association, the home economics department of the board of education, the Merrill-Palmer School of Motherhood and the Pediatric Society.

This committee serves as a clearing house for the exchange of ideas and prevents duplication of effort. The schools are divided among the different groups. The health department does not serve milk in a school already served by some other agency. The nurse attached to that school forms the nutrition class, however.

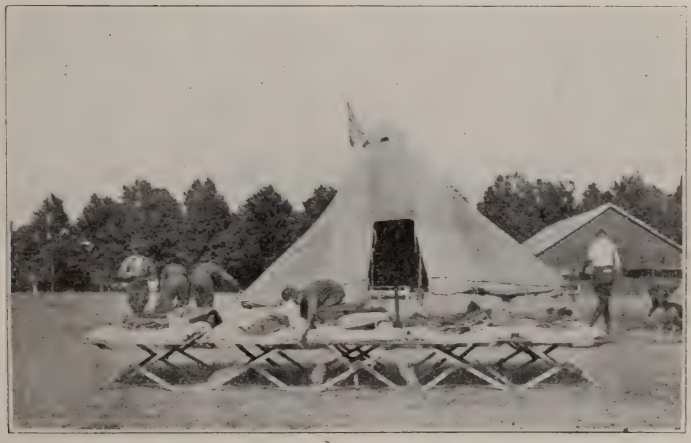
In this manner the nutrition work in the city is centralized, and yet each organization retains a measure of independence. Later if the city appropriation is increased to cover the entire problem, the private agencies need not be called on to supply milk, but will be asked to continue their active coöperation and personal assistance. The women's clubs have been asked to appoint a child welfare aid to every school in the city to assist the school nurse at such times as during the visits of the medical examiners, every other week when the nutrition class is weighed, and to see that some volunteer aid is present twice daily to look after the serving of the lunches. We are doing this to permit the private agencies to have first hand knowledge of school health work and to relieve the school teachers from additional burdens.

It is our hope that by means of this program we shall be doing something constructive and of lasting value, and that besides increasing the scholarship standing of these pupils we shall also be striking a direct blow at tuberculosis at its source, which plan will in time reduce the amount of this disease among young men and women in their twenties.

□

"Camp Roosevelt—Boy Builder."—The foundations of good citizenship are fostered and developed in an exemplary manner at Camp Roosevelt, that unique boy-building and citizen-making institution founded by Major F. L. Beals, U. S. A. Here the boys have an opportunity to become stronger physically, and to develop mentally and morally as well. Living out in the open, breathing fresh air, carrying on a carefully prepared program of work and play under competent instructors, the hundreds of boys who yearly attend this summer playground receive unlimited benefits.

The U. S. War Department and the Chicago Board of Education send such support to this worthy undertaking as to make the camp's opportunities financially available to boys from all parts of the country. Any healthy, wholesome, red-blooded American boy is eligible to attend. The camp headquarters are with the Chicago Board of Education, 460 South State Street, Chicago, Illinois.



Tent Inspection at Camp Roosevelt

FIRST REPORT OF THE COMMITTEE ON MUNICIPAL HEALTH DEPARTMENT PRACTICE OF THE AMERICAN PUBLIC HEALTH ASSOCIATION, NOVEMBER, 1921

This is the second installment of the First Report of the Committee on Municipal Health Department Practice, presented at the third general session, Fiftieth Annual Meeting, American Public Health Association, New York City, November 17, 1921. The first part was published in the January issue. The Committee is planning to issue supplementary reports for each main division of the activities covered.

IV. TUBERCULOSIS

1. *Organization.*

Eighty-one cities reporting are provided with more or less adequate facilities for carrying on tuberculosis work. In only 24 of the cities, however, has the health department a separate appropriation specifically designed for this purpose. In 13 of these cities the work is organized as an independent division and in 6 cases is headed by a full time director.

2. *Reporting.*

The reporting of cases of tuberculosis is still exceedingly lax. Out of 66 cities for which we have data on this point, 9 report less than one case per annual death, 28 report between one and two cases per death, 20 between 2 and 3 cases per death, and 9 more than 3 cases per death. The banner cities in this regard are Chicago, Flint, and Schenectady, with 4.1, 4.4, and 4.8 cases per death, respectively.

3. *Dispensary Treatment.*

Tuberculosis clinics are found in 76 cities—maintained by the health department in 38 instances, by private agencies in 24 instances, by both municipal and private agencies in 24 instances, by both municipal and private agencies in 8, and by state and county agencies in 6. In 71 cities for which we have such data, the average number of weekly sessions per clinic is 6. Evening sessions are held in 9 cities. The average number of physicians employed in tuberculosis clinic work in 62 cities studied is 1.5 per 100,000 population. The average number of nurses doing tuberculosis work is 2.7 per 100,000 population.

The average number of visits per patient per year for 50 cities is 2.8. Seventeen cities show less than 2 visits per patient per year. Eighteen cities show between 2 and 4 visits, and 15 cities more than 4 visits. The banner cities are Newark, Norfolk, Dayton, and San Diego, with 12.8, 13.2, 13.3 and 14.9, visits, respectively. The average number of visits per new patient per year in 45 cities is 6.9. Both these figures are probably somewhat low, particularly the second one, since it is possible with the systems of record keeping in use in most communities, for a patient to reappear without his previous connection with the clinic in question or some other clinic being recognized. The average cost per patient per clinic per year varies widely with the size of the clinic and the amount of follow-up work. The average cost per patient for 26 cities is $4.79, and the average cost per visit for 29 cities is $1.85.

4. *Hospital and Sanatorium Treatment.*

The number of beds available for tuberculosis patients for both incipient and advanced cases (in 66 cities) averages 59.5 per 100,000 population or about one bed for every 1.9 deaths in 59 cities. This figure is probably a little low as we are inclined to suspect that in some instances available sanatorium beds outside the city limits were omitted. The percentage of sanatorium beds occupied in 1920 (in a few instances in 1919) averaged 78. The admission rate to hospitals and sanatoria (41 cities) is 85.4 per 100,000 population or 76.3 per 100 annual deaths in 36 cities. The estimates reported by the health officers as to the state of the cases on admission would indicate that over 60 per cent of the cases admitted to hospitals and sanatoria are in the advanced stage and not

much over 10 per cent in the incipient stage. The average length of stay in hospitals and sanatoria is about 6½ months, and the cost per patient per day in 1920 (in a few instances in 1919) averaged somewhere between $2 and $2.50.

Sixty-five cities report some definite follow-up work of cases discharged from sanatoria and 50 cities claim to keep in touch with cases as long as they remain in the city or until they are terminated. Twenty-six cities have some provision on vocational placing.

5. Other Measures.

About one half of the cities maintain open-air schools and summer camps. Seventy-nine cities have anti-spitting ordinances, but only 12 report arrests. Thirty-two cities have a compulsory segregation ordinance and 6 report specific action taken under this ordinance.

6. Appropriations.

Twenty-four cities report a definite budgetary allotment for tuberculosis averaging 4.4 cents per capita.

V. VENEREAL DISEASE

1. Reporting.

Cases of venereal disease are reportable in all of the cities studied except Washington—in every case under state law, sometimes supplemented by local ordinance.

Cases are reported by name in 28 cities and by number only in 24 cities, while in 30 anonymity is maintained provided the patient reports regularly for treatment.

A total of 61,758 cases of syphilis and 58,074 cases of gonorrhea were reported for 1920 (in a few instances for 1919) in 62 cities, with a total population of close to 23 millions, giving incidence rates of 270 and 253 per 100,000, respectively.

2. Clinics.

Venereal disease clinics are in operation in 82 cities; Somerville alone reports no clinic. In 46 of the 82 cases the health department maintains or shares in the maintenance of the clinics. Treatment is generally free although in 18 cities a nominal charge is made where possible.

3. General Activities.

Seventeen cities report special programs in the line of combating venereal disease, aside from the provision of clinic treatment.

4. Appropriations.

Thirty-eight cities report a definite budgetary allotment for venereal disease work, averaging for the group 2.1 cents per capita.

VI. INFANT HYGIENE

1. Organization.

Infant hygiene work is carried on in all of the 83 cities studied. In 21 cities it is carried on by private agencies alone, in 15 cities by the health department or other municipal agencies alone, and in 47 cities both by private and municipal organizations.

There is a separate division of child hygiene or infant hygiene under the department of health in 32 cities,—in 15 cases with a full-time medical director, in 6 cases with a part time medical director, and in 11 cases with a nurse director.

2. Prenatal and Obstetrical Service.

Prenatal clinics are found in 67 cities. In 26 cities they are maintained by the health department, in 28 by private agencies, and in 13 there are both municipal and private clinics of this type.

Out of the 46 cities for which data were available, 13 report less than 10 per cent of the infants born as delivered in hospitals, 11 cities between 10 and 19 per cent, 10 cities between 20 and 29 per cent, 6 cities between 30 and 39 per cent, and 6 cities 40 per cent and over—the highest degree of hospitalization appearing in Springfield (49 per cent); Minneapolis (52 per cent); Spokane (64 per cent). Outpatient obstetrical service is available in 52 cities. In 20 cities it is provided by municipal agencies, in 28 by private agencies, and in 4 by both.

In a series of 61 cities, 16 cities report less than 10 per cent of births attended by midwives, 16 between 10 and 19 per cent, 13 between 20 and 29 per cent, 7 between 30 and 39 per cent, and 9, 40 per cent and over, the highest figures being estimates of 40 per cent in Wilmington, 50 per cent in Fall River and Trenton, and 80 per cent in New Orleans. Registration, either state or local, is required in 66 cities. In 43 some supervision is exercised over midwives, while in only 30 is any special training provided. In 56 cities the use of prophylactic silver solution is required.

3. Infant Welfare Stations.

Infant welfare stations are provided in 77 cities,—in 35 instances by municipal agencies, in 31 by private agencies, and in 11 by both.

In 49 cities for which data were available the total number of infants under one year under observation averaged 32.9 per 100 births. The number of annual visits per patient for 76 infant welfare stations averaged 19.6, for 60 New York City stations, 24.0.

There is on the average one infant welfare physician provided for each 689 babies registered at the infant welfare stations (52 cities), and one infant welfare nurse for each 313 infants (57 cities). The average cost of infant welfare station service for 68 welfare stations for which we have data is $4.46 per patient. The cost per visit for 67 stations averages 21 cents (60 New York stations, 19 cents). Little Mothers' leagues are organized in 26 cities.

4. Appropriations.

A specific budgetary allotment is reported for infant hygiene in 36 cities, averaging 5.7 cents per capita.

VII. MEDICAL SCHOOL INSPECTION

1. Organization.

Medical inspection of children in the public schools is carried out in all of the 83 cities under study except Dallas. It is a function of the health department in 33 cities, of the board of education in 45, while in 4 it is handled jointly by the health department and the board of education. Health department control is usual in the larger cities (58 per cent first group, 46 per cent second group); but not in the smaller cities (34 per cent, third group).

Medical inspection of children in parochial schools is carried on in 39 cities; in 34 by the health department, in 5 by the board of education.

2. Medical Staff.

In 27 cities the chief medical inspector is a full time employee; but staff medical inspectors are on a full time basis only in 12 cities. The number of pupils per full time inspector is usually about 10,000, varying from 3,000 in Pittsburgh to 19,000 in Omaha.

3. Nursing.

Five cities have no school nursing and in Cincinnati, Milwaukee, Salt Lake City and Atlanta school nursing is done on the generalized plan. In 73 cities special school nurses are employed. For the entire group of cities there is one nurse for every 4,000 pupils enrolled; in general the cities of the first group are least well provided (one nurse per 4,600 pupils). Schenectady has the amplest provision (one nurse per 1,300 pupils).

4. Nature of Examination.

Physical examination is given on admission in 51 cities. In 38 of these this is a general physical examination, in 5 an examination for the detection of communicable disease; in 8 the scope of the examination is not specified.

Examinations subsequent to entrance are given in 79 cities. In 38 of these cities the examination is stated to be a "complete" or a "general" physical examination, and made in 3 cases oftener than once a year, in 18 cases annually, in 6 cases every two years, and in 11 cases less often, usually three times during the period of school life.

5. Dentistry.

Fifty-four cities report dentists employed for school work. In 20 instances some or all of the dentists are full time employees. Dental clinics are maintained in 31 cities.

6. Results.

Records of physical examinations and defects corrected are often poorly kept and the results are not tabulated in many of the cities under observation. It is claimed, however, (data from about 30 cities) that 33 per cent of the defective teeth cases, 52 per cent of the defective eye-sight cases, 31 per cent of the defective hearing cases, 28 per cent of the diseased tonsil cases, and 42 per cent of the enlarged adenoid cases are remedied.

7. Appropriations.

A specific budgetary allotment for medical school inspection is included in the health department budget in 30 cities, averaging 8.8 cents per capita.

VIII. INDUSTRIAL HYGIENE

Industrial hygiene work is usually carried on by the state government and by industrial concerns. Industrial hygiene is an activity of the department of health in but 7 of the 83 cities in our study; and New York and Chicago are the only cities having an extensive program for industrial hygiene. The work of the other cities in this field is generally to regulate hours of labor for women and children, and to make sanitary inspections.

Inspection of industrial plants is carried out by the health department in 4 cities and 1 department (New York) maintains a clinic for industrial diseases.

In 49 cities permits are granted for children entering employment, in 26 the work being under the department of health.

IX. SPECIAL CLINICS

The data on health centers and other special clinics are voluminous and have not yet been analyzed. They will be presented in our final report.

X. PUBLIC HEALTH NURSING

1. Organization.

Public-health nursing service of some sort is available in all the cities studied and we have reasonably full data for 80 cities. In 71 of these cities some public-health nurses are employed by the health department; but in no case is such service provided by the health department alone. In 77 cities private agencies participate in this work and in many, governmental agencies other than the health department play a part.

Out of 46 cities for which we have the data, 35 cities maintain a special bureau of nursing, while in 11 the nurses are distributed in various departments.

Thirty-nine per cent of the total public-health nursing service of the 80 cities is provided by the municipal health department. In 12 cities which spend more than $.10 per capita for nursing service, the proportion of the total nursing service provided rises to 59 per cent.

2. Extent of Public-Health Nursing Service.

Grouping together all official and unofficial agencies, there is an average of 16.5 public-health nurses per 100,000 population in the 80 cities for which we have these data.

The 31 eastern cities with 18.3 nurses per 100,000 population are better provided than the 18 southern cities with 14.3, or the 9 western cities with 10.

The 14 New England cities with 26 nurses per 100,000 population are the best provided. Their superiority is due to the many private agencies which are providing public-health nurses.

One supervisor is provided on the average for every 12.5 nurses.

3. Types of Nursing.

Of the 74 cities for which we have the data, the public-health nursing service is generalized in 19 cities and specialized in 55. In the cities in which there is specialized nursing, we find 2.7 nurses per 100,000 population available for

tuberculosis work, 4.2 for school nursing, 3.1 for infant hygiene and 7.5 for general nursing service.

The nurses employed by the municipal health department may be divided approximately as follows: school nurses, 35.9 per cent; tuberculosis nurses, 18.0 per cent; infant welfare nurses, 15.2 per cent; venereal disease nurses, 3.7 per cent; others (largely for communicable disease work), 27.2 per cent.

4. Ratio of Visits per Nurse.

For 39 cities we find a ratio of 1,693 visits per year per nurse. Twenty-six cities whose health department nurses are doing specialized work report 1,618 visits, and 9 cities whose health department nurses are doing generalized work report 1,842 visits. In four cities (Dayton, Des Moines, Nashville and Kansas City, Kan.) where all the nursing forces, public and private, are combined in one organization, 2,286 visits per nurse per year are reported.

5. Appropriations.

In 38 cities it is possible to estimate the sum spent by the health department for public-health nursing; the amount averages 9.5 cents per capita.

XI. PUBLIC HEALTH LABORATORIES

1. Organization.

All of the 83 cities have facilities of some sort for public-health laboratory examinations; sixty-four cities maintain a laboratory for the examination of all types of specimens, both chemical and bacteriological; 12 cities have a bacteriological laboratory and a separate chemical laboratory under the bureau of food and drugs; while 5 cities arrange for this work by contract with private laboratories or hospitals. Among the 64 cities which maintain a central laboratory, there are 8 in which the laboratory is a small one, the bulk of the work being handled by state laboratories

Forty-one cities report a full time chief of laboratory service. Salaries for this position range from $1,500 to $6,500. The average salary is $4,016 for cities of the first group, $2,665 for cities of the second group, and $2,496 for cities of the third group.

2. Kind of Work Done.

Bacteriological examinations of water are made in 64 cities, chemical in 39; bacteriological examinations of milk are made in 71 cities, chemical in 68; examinations of food are made in 44 laboratories; of drugs in 24; examinations for diphtheria in 74; tuberculosis in 77; typhoid in 74; malaria in 37; syphilis in 48, and gonococcus in 63.

In addition to the examinations ordinarily made, pathological tissues are examined in 14 city laboratories, pneumococcus typing is done in 15, dark fields for syphilis are made in 14. The complement fixation test for gonorrhea and tuberculosis is not used in routine. Eight cities make it in special cases for gonorrhea and 1 city for tuberculosis. Virulence tests are made in 22 of the laboratories.

Research work is carried on in 29 out of 83 laboratories but it is an important part of the work of the organization in only 24, the majority of which are among the larger cities.

3. Volume of Work and Cost.

The average number of examinations (of all kinds) made in 77 cities average 86.0 per 1,000 population at an average cost of 43 cents per specimen. The average staff required for making 100,000 examinations is 8.3 bacteriologists, 2.3 chemists, and 16.1 other persons (technicians, clerks, etc.).

XII. MILK INSPECTION

1. Organization.

All but one of the cities have milk control organized under the municipal health department. In 35 cities milk control is under the division of foods, in 2 under the division of laboratories, and in 45

cities it is handled by the health officer himself or by a subordinate directly responsible to him.

The average daily consumption of milk in 68 cities is 0.66 pints per capita.

2. Inspection.

Forty-five cities employ veterinarians and inspectors; 4 employ veterinarians only and 29 inspectors only.

The difficulty of supervision at the source is illustrated by the fact that cities of the first group average 858 farms per 100,000 population supplied, those of the second group 459, and those of the third group 587. These farms receive at least semi-annual inspections in 40 cities and are scored in 55 cities, a government score card being used in 48 cities.

The average number of milk depots for 74 cities reporting is 33 per 100,000 population served. Inspections are made weekly or oftener in 39 cities.

3. Medical Examination.

Seventeen cities make a physical examination of milk handlers and 24 have a routine procedure for detecting and excluding disease carriers. The completeness with which these ends are attained is however dubious.

4. Laboratory Standards.

Samples for laboratory examination are collected weekly or oftener in transit in 13 cities, at milk depots in 22, and on delivery wagons in 24. Laboratory examinations at the farm are rare. In 72 cities an average of 154 laboratory samples of milk per month are examined per 100,000 population.

The chemical milk standards employed are usually those prescribed by the state; the requirements for solids are 12 per cent in 41 cities; for solids not fat 8.5 or higher in 66 cities, for fat, quite equally divided between 3.0, 3.25 and 3.5 in 64 cities.

A temperature as low as 50 degrees F. is required on delivery wagons in 39 cities and at milk depots in 47. Only 33 cities have this requirement for milk at farms and 30 for milk in transit.

5. Tuberculin Testing.

In 39 cities tuberculin testing is required of all herds from which raw milk is sold. Reacting cows are slaughtered in 54 cities and in 47 of these the state gives compensation.

6. Pasteurization.

Pasteurization of all milk except that from tuberculin tested herds is specifically required in 38 cities.

The holding system is required in all but 20 cities, a temperature of 145 degrees F. for 30 minutes being most common.

Recording thermometers are required in all but 18 cities.

Three-fourths of the 12 cities in the first group report 95 per cent or more of milk as pasteurized. In the second group about one-third of the cities have 95 per cent pasteurized, and in the third group only five cities. In 12 cities pasteurization plants are inspected weekly or oftener. Temperature charts are used for control of pasteurization in 16 cities.

7. Grading and Licensing.

Farms are licensed in 31 cities and dealers in 70 cities.

A grading system is in force in 30 cities but the standards vary widely in different instances.

8. Certified Milk.

Milk commissions exist in 46 cities and in 45 instances where data were available an average of 508 quarts of certified milk per 100,000 population is in daily use.

XIII. FOOD AND DRUG INSPECTION

1. Organization.

Food inspection is a function of the municipal health department in all of the cities studied; but drugs are inspected in only 36 out of 70 cities by the municipal department, being under state or federal control only in the other 24.

The chief of the food inspection staff is a whole time employee in only 29 out of 60 cities, and in one the health officer is directly in charge of food inspection. In 12 cases it is not stated whether he is a whole or part time man.

The staff usually consists of veterinarians and food inspectors. In 33 cities both veterinarians and food inspectors are employed, in 7 cities only veterinarians, and in 32 only food inspectors.

2. Control of Food Handlers.

Medical examination of food handlers is reported in 34 out of 81 cities. Thirteen cities report 500 or more such examinations in 1920.

3. Inspections of Premises.

Municipal sanitary control includes inspection of hotels in 45 cities, bakeries in 57, groceries in 51, fruitstands in 39, meat markets and slaughter houses in 61 and candy stores in 54.

4. Special Control of Drugs.

Analyses of drug samples are made in the public-health laboratories of 24 cities out of the 36 cities in which drug inspection is carried on.

Methods for the prevention of the sale of nostrums are reported in only four cities and consist of laboratory analysis, educational propaganda, ordinance and inspection.

XIV. SANITARY INSPECTION AND SANITATION

1. Organization.

Sanitatary inspection or sanitation forms a large part of the service of nearly all health departments. In 53 cities, there are bureaus of sanitation or sanitary inspection; in five other cities, there are bureaus of food and sanitary inspection. In the remaining cities, there are no organized divisions, each of the inspectors reporting directly to the health officer or other executive officer. The chiefs of bureaus of those cities having organized bureaus receive from $1,250 to $4,580, with a median salary of $2,200 per annum.

The scope of this service varies widely in different cities, including nuisance inspection in 81 of our 83 cities, communicable disease work in quarantining and fumigation in 10 cities, plumbing inspection in 18 cities, housing in 40 cities, food or dairy inspection in at least five cities, and in one city, Atlanta, street cleaning.

In 47 of the 80 cities for which we have sufficient data, and where nuisance inspection is under the health department, we find some of the personnel classified as sanitary police or sanitary inspectors with police power. Sometimes, these are members of the regular police department and are paid by the police department. In 29 cities, the sanitary inspectors have no police power.

2. Activities.

The most common activity of the sanitary division is investigation of nuisances. These inspections are largely in answer to complaints received by the department, although in 63 cities, inspections are instituted on the department's own initiative. In forty-seven cities there are annual clean-up campaigns; 71 regulate stables; 59 cities are undertaking fly control work, 41 cities mosquito control, and 16 cities rat extermination work.

Plumbing inspection consists of approval of plans for new and old plumbing, issuing permits and inspection of new and old work. Besides the 18 cities where it is a part of the bureau of sanitation, it is also under the health department as a separate bureau in 22 additional cities. In the remaining cities, it is under some other municipal department, usually the building department.

Housing inspection with special reference to ventilation, overcrowding, etc., is a health department activity in 40 cities. In ten others it is carried on under another division. No housing inspection was reported in fourteen cities; in a few it is under state commission.

Garbage collection and disposal is reported under the health department in 23 of the 79 cities reporting. In the remaining cities, it is under some other

city department. In 18 cities where the collection and disposal is under some other department, the health department had advisory control over the collection. The disposal of garbage is by feeding to hogs in 28 cities, by incineration in 21, by reduction in 17 cities, by dumping in 18 cities and not stated in 8 cities.

XV. WATER SUPPLY

1. General Statistics.

The water supply is owned by the city in 72 of the 83 cities under study, by private concerns in 9, and jointly by the city and county in one; one is not stated.

About 94 per cent of the population represented in this study use city water. In 9 only out of 70 cities reporting is less than 85 per cent of the population supplied with city water.

The average daily consumption of city water in 66 reporting cities ranges from 52 gallons per capita (in Fall River) to 259 (in Chicago). Thirty cities report 51-100 gallons; 21 cities, 101-150 gallons; 7 cities, 151-200 gallons; and 8 cities, 201-259 gallons.

In 33 cities out of 63, at least 90 per cent of the total city water supply is metered; in 8 cities, the proportion of metered water is between 71 and 90 per cent; in 3 cities between 51 and 70 per cent; in 7 cities between 26 and 50 per cent, and in 12 cities it is less than 26 per cent.

2. Source and Treatment.

Forty-three out of 80 municipal supplies are derived from rivers, 15 from lakes and 5 from combined lake and river sources. Eleven are supplied from wells and 6 cities have combination well and surface supplies.

Storage of water is specifically reported in 32 cities. Sixty-four out of 76 cities indicate the use of purification treatment other than storage. Chlorine is employed as a routine in 51 of the 76 cities reporting. In 31 cities mechanical filters are in operation, in 10 cities slow sand filtration.

3. Health Department Supervision.

Supervision of the water supply by the health department is reported in 45 cities. In 32 of these, this control includes testing of laboratory samples, in 6 inspections of the water shed. In 12 other cities there is health department supervision of a merely advisory or coöperative type. Inspection of water sheds by departments other than the health department is reported in 26 cities.

4. Laboratory Control.

Laboratories are located at the plant in 44 out of 71 cities. Bacteriological examinations are made daily or oftener in 52 cities out of 68 reporting. Chemical examinations are not so frequent. They are made daily or oftener in only 24 cities while 24 cities report them as made less often.

5. Supplementary Private Water Supplies.

Private water supplies provide a portion of the water in 43 cities in addition to the 9 cities entirely supplied from private sources. In 23 of these the supply does not exceed 1 per cent of the total water consumed.

Permits for bottled water are required in 19 out of 74 cities, issued by the city in 15 and by the state in 4 instances. In 34 cities the city health department, and in 6 cities the state health department exercises some supervision over bottled water.

XVI. SEWERAGE AND SEWAGE DISPOSAL

1. Sewerage.

In a group of 68 cities reporting as to the adequacy of sewerage, 39 cities only have 85 per cent and more of the population connected with the public sewers.

In 33 out of 76 cities reporting the combined system of sewerage is in use, in 24 cities the separate system alone; while 19 cities have both combined and separate systems.

2. Sewage Disposal.

Fifty cities discharge their sewage into rivers, 8 into lakes and 20 into the ocean.

Fifty-nine cities definitely state that the sewage is discharged untreated, 19 report the specific treatment used and for 5 cities we lack data. The 19 cities for which treatment is reported may be roughly classified as follows:

Sedimentation, septic or Imhoff tank treatment, 7 cities (in Providence followed by chlorination).

Preliminary sedimentation of some sort followed by trickling filtration, 7 cities.

Sedimentation followed by contact treatment, 2 cities.

Sedimentation followed by sand filtration, 2 cities.

Activated sludge treatment, 1 city.

The treatment plant is under technical supervision in 18 cities and there is a laboratory at the plant in 12.

Nuisance arising from sewage disposal is reported in 29 cities.

3. Privies and Cesspools.

In 83 per cent of the cities of the first group, 50 per cent of the cities of the second group and 37 per cent of the cities of the third group it is reported that not over 5 per cent of the population use privies.

Fly proofing is required in 32 cities, 3 of the first, 7 of the second and 22 of the third group, 65 cities reporting.

The board of health is responsible for cleaning privies in 51 cities, private agencies in 6, and other city departments, not specified, in the rest, 68 cities reporting.

The percentage of flush closets connected with cesspools is from 0.25 to 4 in 2 cities of the first group, from 0.5 to 15 in 4 cities of the second group and from 0 to 50 per cent in 19 cities of the third group.

1. Comfort Stations.

Comfort stations are found in 59 of the 71 cities reporting, 7 of the first, 9 of the second and 43 of the third group, the number varying from one to 24. Hot water is supplied in 28 cities and soap and towels are available in 42.

XVII. PUBLICITY AND PUBLIC HEALTH EDUCATION

1. Organization.

Health education through publicity and lectures is carried on in 75 cities.

A publicity director is in charge in 8 cities; the health officer personally directs the work in 38. In Chicago and Flint, he is assisted by an experienced newspaper man, and in five other cases by deputies, bureau heads, nurses, etc. In 22 cities there is a definite appropriation for this work.

2. Bulletins

Bulletins are published in 44 cities. In 37 they are published monthly and in 8 weekly, while 6 of these cities issue both weekly and monthly publications.

The bulletin is issued free except in New York and Toledo, where the price is nominal. It is sent principally to public-health workers, social agencies, other health departments, schools, libraries, and "leading citizens." In only 2 is it sent to industrial plants.

3. Press stories.

The newspapers are supplied with educational material in 62 cities; in 5 daily, in 13 weekly or oftener and in the rest irregularly.

4. Lectures.

Lectures are given in 50 cities by the health officer in the majority of cases. Motion pictures are used in 18 cities and stereopticon views in 21. Seven departments own a small footage of films.

Thirty-eight cities have exhibits, but only 17 report that they have used them during the period under study. Twenty-five cities have graphic displays in the department office; 24 have portable exhibits and 4 have prepared exhibits for fairs, etc.

5. Training of personnel.

Thirty cities offer facilities of some sort for training their public-health employees. Twenty-two of these have lectures or training courses within the department, 6 avail themselves of public-health training courses offered at local colleges, and three use the public-health courses offered by hospitals.

6. Expenditures.

The per capita cost for publicity and public-health education in the 22 cities which have a special appropriation for this purpose is .5 cents per capita.

XVIII. VITAL STATISTICS

1. Jurisdiction.

Where the state department of health is charged with administering the vital statistics law, the city health department is the local agent for enforcing the provisions of birth and death registration acts (67 cities). In 16 cities, located in states where the responsibility for enforcing the registration acts is placed upon the secretary of state, the city clerk is registrar.

2. Registrars and statisticians.

A full-time registrar or statistician is employed by 46 of the cities. The remainder of the 83 have part-time direction of this phase of health work. Salary data were partially reported. The highest salaries for full-time direction of vital statistics work were paid in New York City ($5,000), Chicago ($3,800), and New Orleans ($3,300).

3. Reports and Bulletins.

Weekly bulletins are issued by 22, monthly bulletins by 53, and annual reports by 45 of the cities.

4. Cost of Registration Department.

Data on cost were reported by 30 cities. In these cities the per capita cost for registration and statistical service was 2 cents, varying from a maximum of 5 cents to a minimum of .8 cents.

5. Accuracy of Certificates of Causes of Death.

In 71 of the cities, death certificates are scrutinized carefully for deficiencies in the statement of the cause of death.

6. Tabulations.

No satisfactory data on the tabulations made by individual health departments were obtained. A summary view of the weekly, monthly and annual reports shows, however, a striking lack of uniformity among the cities in table forms, details of tabulation, etc.

7. Prosecutions; completeness of reporting.

Four of the cities reported prosecutions for violation of the birth registration laws. In two cities (New York, Richmond) convictions were obtained. Only two cities reported prosecutions for violation of the death registration laws (Minneapolis, Houston). Convictions were obtained in both cities, but obviously these figures are inadequate statements of the condition of registration in these cities.

Only eight of the cities reported that they were getting less than 90 per cent of the births. Seven cities reported death registration percentages of less than 95. None of the percentages ran below 90, however.

8. Births Reported by Doctors and Midwives.

In cities having a high proportion of foreign-born population, the percentages of births reported by midwives were high, i. e., above 30 per cent; in cities with a large proportion of native-born population the percentage was small (below 10 per cent). In four cities less than 50 per cent of the births were reported by doctors (in New Orleans, only 20 per cent). Thirty-nine cities report 75 per cent or more of the births as having been certified by doctors.

EDITORIAL SECTION

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PAMPHLETEERING AND PUBLIC HEALTH

Education in hygiene and public health is one of the essentials in the proper development of our national vitality. The most popular instrument for such education seems to have been and still is by pamphleteering. That there has been something of an abundance of health pamphlets is shown by a few statistics. The eleventh edition of the list of publications of the government on health, diseases, drugs, and sanitation, which was issued by the superintendent of documents in August, 1921, contains approximately one thousand different pamphlets on these subjects. They come from nearly fifty separate government bureaus, divisions, or sections. In this catalog is listed only such material as is still available. The United States Public Health Service alone has issued about nine hundred pamphlets on various health subjects since 1896, according to its catalog of April, 1919, and 173 more have been put out in the two years following this catalog. The United States Children's Bureau has issued some ninety different pamphlets since 1912, and the Bureau of Education adds about thirty more to the ever growing list. Each of the state departments of health produce from one to fifty pamphlets. Let us say, as a conservative estimate, that there is an average of ten to a state. Thus, nearly five hundred more pamphlets join the throng. With the number which emanates from the nearly eight hundred municipalities having health departments, from the one hundred and eighty odd national agencies which deal with some phase of public health, and from the numerous state and local voluntary health agencies, whose number is legion, the total amount of health pamphleteering begins to assume gigantic proportions. It is a safe guess that there are not less than two thousand health pamphlets which have been issued within the last twenty years; it is probable that there are more.

The distribution of these various pamphlets also presents some interesting data. According to the 1921 report of the Surgeon General, the Public Health Service distributed in 1920 nearly 18,000,000 pamphlets. About half of these were on the subject of venereal diseases and were also handled by the states. In 1921 the Public Health Service distributed about 5,000,000 pamphlets, more than three-quarters of which dealt with social hygiene. The Children's Bureau has sent out nearly 9,000,000 of their pamphlets in nine years of existence, and the Bureau of Education has distributed about 500,000 of the health education series. When to these figures are added those of the Department of Agriculture, which has many health publications, the other government departments, the states, and the voluntary organizations, as well as the municipalities, the total annual distribution of health pamphlets becomes too great even to hazard a guess at the amount.

If we could assume that all of these pamphlets were assiduously read, and that they were effective, the thought arises why the general public does not show a greater use of the knowledge which should have been gleaned from these valuable publications. Perhaps some one may suggest the iconoclastic thought that there may have been some lack of quality in a few of these pamphlets, though there seems little lack of quantity. Yet, these pamphlets have undoubtedly accomplished much good; there are one hundred million people and an effort to reach all of them with instructive and inspiring health messages is worth while. But one other thought arises. How much more good might have been accomplished if the energy, effort and expense in preparing these two thousand pamphlets and in distributing them had been concentrated in producing and thoroughly distributing, say, one hundred? One hundred pamphlets in twenty years which represented the last word in scientific accuracy, popular appeal and effective propaganda! It is a thought worth keeping in mind for future consideration. J. A. T.

MOBILIZING AGAINST CANCER

The announcement by the Bureau of the Census of the mortality rates from cancer for 1920 is a warning call to action on the part of sanitary and medical science. The upward trend of the specific death-rate for cancer in the United States registration area for deaths shows no break, but rather an acceleration. The number of deaths from this cause in the area during 1920 was 72,931, and if the rest of the nation had as many deaths from this cause in proportion to the population, the total number of deaths from cancer in all states for 1920 was 89,000—5,000 more than the estimated total for 1919. The cancer death-rate in the registration area for 1920 was 83.4 per 100,000 population, as against 80.5 in 1919.

In comparing the death-rate from cancer in one state with that in another, the census rates are corrected for differences in the age and sex distribution of the population because, generally speaking, only persons in middle life and old age have cancer, so that a state with many old persons may be expected to have more deaths from cancer than a state with comparatively few old persons. The highest corrected rate for 1920 is 98 per 100,000 population for the state of Massachusetts, and the lowest is 45.9 for the state of South Carolina.

For a few states corrected rates have been calculated separately for the white

and colored population. In this group of states the highest rate for the white population is 92.5 per 100,000 for New York, and the highest rate for the colored population is 82.2 for Pennsylvania. The lowest rate for whites is in Mississippi, and the lowest rate for Negroes is 38.5 for South Carolina.

Summarized briefly, the corrected rates show that the Northern states have comparatively high cancer mortality, while that of the Southern states is comparatively low. But there is little difference between the rates of the white and colored races in the same states. In other words, both races seem about equally susceptible to cancer, but both seem less susceptible in the South than in the North.

It can scarcely be claimed that this menacing situation has come upon us unawares without intelligent effort to combat it. Since the organization, within the medical profession, in 1913, of the American Society for the Control of Cancer, there has been persistent, devoted, and far-seeing activity to learn the facts regarding cancer and to bring them home to the public. The Society has had a phenomenal development and within the past year has joined the National Health Council and put through a new plan of organization and a period of intensive popular propaganda which have gone far to give the disease the importance in the public mind which it possesses in the vital statistics. The regional and state organization under the presidency of Dr. Charles A. Powers has vastly stimulated local activity in cancer control. The results of the first national "Cancer Week," held October 30-November 5, 1921, indicate a great increase of interest in the subject, evidenced both by correspondence at the Society's headquarters, and a large increase in the number of cases uncovered and of applications to physicians for consultation and diagnosis. In November, 1921, one community reported 132 cases, as against 50 in November, 1920.

Offers of support from many sources are multiplying. For instance, the North Pacific Surgical Association appropriated a sum of money out of its treasury to be expended in aiding the work of the American Society for the Control of Cancer in the northwestern region, including Washington, Oregon, and British Columbia, and has appointed a committee to confer with the regional director of the Cancer Society as to the most advisable way to expend this money.

This is only a suggestion of the eager generosity of the organized medical and surgical profession to aid in cancer control. The health officials, federal, state, and municipal, have been no less active, and those in charge of Cancer Week were astonished at the wave of coöperation they received from the health departments. Several state boards turned over an entire issue of their bulletins or issued special publications on the subject of cancer. There was an equally marked desire to assist shown by the general press. Editors of newspapers, popular magazines, and periodicals of all kinds gave freely of their space. Moving-picture houses, churches, insurance companies, fraternal orders, women's clubs, business clubs, and civic organizations of all kinds participated.

The control of cancer, even more imperatively than most specialized health work, rests on two main legs: research and popular education. It is true that we know as yet comparatively little about the disease, and there is an urgent need for more knowledge of cancer itself—its etiology, heredity, dietetic relations, the value of various therapeutic agents in its treatment, and standardized

statistical information as to its incidence, mortality, and distribution. Valuable research in all these fields is on foot. It needs the utmost encouragement, both moral and financial. Here is a wide-open field for the scientific philanthropist, and the sanitarian should keep in constant touch with its developments.

But even more fundamental is the necessity for public enlightenment. We do not have a great fund of technical information about cancer, but we do know enough for the immediate practical purpose of prevention, which is an educational problem at bottom. Certain broad principles based on experimental evidence are known and agreed upon:

1. Cancer is a non-contagious local growth, involving certain cellular tissues.

2. It can be checked and destroyed if taken early enough, and the malignant tissue removed by surgical excision, or radioactive treatment.

3. It is essential that the patient recognize the danger symptoms—small lumps, hard spots, or persistent sores—and secure adequate diagnosis and treatment immediately.

This is all that it is really necessary to know for a campaign of prevention, and if conscientiously applied by health officials, physicians, nurses, and the plain citizen, working in cordial coöperation, a long start will have been made toward the reduction of that onward-marching death-rate. No effort to further it should be neglected.

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ASSOCIATION NEWS

LIST OF NEW MEMBERS

Proposed for Election to the A. P. H. A. December 1 to December 31, inclusive.

Names of Sponsors are set in **Bold Face Type.**
Names of New Members are set in Light Face Type.

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Mr. Buck, Asst. San. Eng., Saskatoon, Sask.
Mr. Albert Wright, City Hall, Prince Albert, Sask. Sanitary Inspector, Full Time.

GERMANY

Mazyck P. Ravenel, M. D., Columbia, Missouri.
Thomas J. Flynn, Major, Medical Corps., A. P. O. 927, Coblenz, Germany.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 10th of each month for publication on the 20th. Mail to New York office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in New York City. In replying give age, professional training, salary requirements, previous positions held and three or more references.

United States Civil Service Examination for Specialist in Child Hygiene.—The United States Civil Service Commission announces an open competitive examination for specialist in child hygiene. A vacancy in the Children's Bureau, Department of Labor, Washington, D. C., at $2,400 to $4,000 a year, and vacancies in positions requiring similar qualifications, at these or higher or lower salaries and expenses, will be filled from this examination.

The duties of appointees will be to plan and conduct investigations into the causes of infant, child, and maternal mortality in selected communities, rural and urban; into the methods of their prevention; into dangerous and injurious occupations; into the health of dependent, delinquent, and defective children, and other matters relating to the health of children. Appointees may also be required to investigate maternal and child welfare through the holding of conferences.

Competitors will not be required to report for written examination, but will be rated on the following subjects:

1. Education	25	weights
2. Experience	50	"
3. Publications or thesis (to be filed with application)	25	"
	100	"

An oral test will be given later to those attaining an eligible rating.

Applicants must be under fifty years of age; must have graduated from a medical school of recognized standing; and, in addition, have had at least three years' specialization in the hygiene and diseases of maternity and childhood, either in the practice of medicine, or in educational preventive work in connection with maternal, infant, and child mortality conducted by public or private agencies.

Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Customhouse, Boston, Mass., New York, N. Y., New Orleans, La., Honolulu, Hawaii; Post Office, Philadelphia, Pa., Atlanta, Ga., Cincinnati, O., Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Calif., Denver, Colo.; Old Customhouse, St. Louis, Mo.; Administration Building, Balboa Heights, Canal Zone; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R.

Applications should be properly executed, excluding the medical certificate, and must be filed with the Civil Service Commission, Washington, D. C., with the material required, prior to February 14, 1922.

The exact title of the examination, as given at the head of this announcement, should be stated in the application form.

POSITIONS WANTED

Positions wanted announcements will henceforth be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 10th of the month.

Wanted: Bacteriologist, five years in charge of bacteriological department and assistant chief chemist in a large industrial laboratory wishes position. Equipped a complete bacteriological laboratory for pathogenic disease diagnosis, blood counts, urine analysis, etc.; also water analysis for chlorine control. Considerable research work inaugurating pasteurized milk plant; all bacteriological analysis of milk in connection with an ordinance by local Board of Health. Varied experience in chemical work; best of references. Address 197, C. E. L., care this JOURNAL, New York address.

Wanted: Position as full-time health officer or epidemiologist by a physician who holds D. P. H. and other college degrees; has had much experience in government, state and municipal service; best of references. Address

200 W. N., care this JOURNAL, New York address.

Wanted: Recent graduate of well known Mid-Western college, with thorough training in bacteriology and chemistry, and a limited amount of practical laboratory experience, desires position in bacteriological laboratory. Address H. E., care of this JOURNAL, New York address.

Wanted: Position in field of child hygiene. University as well as medical graduate. Long experience in health work; two and one-half years in child hygiene; at present director Division of Child Hygiene, State Board of Health; available within next few months. Address 199, care this JOURNAL, New York address.

Wanted: Biochemist, M. I. T. graduate, 1915, at present employed as chief chemist with a large firm manufacturing biologicals and pharmaceuticals, desires to make a change. Can handle research problems relating to manufacturing processes in pharmaceuticals and biologicals. Has had considerable experience in the manufacture of antitoxins, sterile pharmaceuticals and other related products. Salary expected, $3,200-$3,500. Address G, 107, care this JOURNAL, New York address.

BOOKS AND REPORTS REVIEWED

Preventive Medicine and Hygiene. *Milton J. Rosenau, M. D., New York and London: D. Appleton & Co., Fourth Edition, 1921, Pp. 1504. Price, $10.00.*

Dr. Rosenau had vision to plan a work of this kind which would contain within a single volume an almost encyclopedic amount of information. The event has justified his viewpoint and his labor, which must have been enormous. It has been deservedly popular, so that a fourth edition has been called for in less than a decade. It easily takes first rank among text-books on this subject. It is a pleasure, but no surprise, that it is by an American, for, during the last decade or two, Americans have been outstripping all others in both the science and art of preventive medicine.

Every health officer must, and many others who are interested in human welfare and the progress of science, will desire to have at hand a book to which he can safely refer for the latest information. There is a vast amount of detail in Dr. Rosenau's book. Thus, if a person wishes to learn the best technique for smallpox vaccination, the best poison for flies, how to use cyanide for fumigation, what makes milk bitter and the definition of kata-thermometer, or the coëfficient of variability, he will find it here. Many subjects of a more general nature are discussed, such as theories of immunity, anaphylaxis, the principles of Mendelian inheritance and the relative values of public-health work, to mention only a few of the important matters treated. Most of what a health officer wants to know is in the book and, what is equally important, it can usually be easily found by the index. The material is well analyzed and arranged and the discussion proceeds in an orderly manner so that it is easy to turn to what is wanted.

No one man can be a master of the whole art of public health and hygiene and Prof. Rosenau has shown his good judgment and guaranteed accuracy by securing the aid of such men as Krause, Stiles, Carter, Howard, Winslow, Whipple and many others like them.

Among the new subjects introduced into this edition are public-health methods and measures; organization of health departments; housing; rural sanitation; public-health education; public-health nursing; drug addiction; alcoholism; undernutrition; infant mortality; vitamines; oral hygiene; ocular hygiene; personal hygiene and a laboratory course in preventive medicine and hygiene. Many other topics have been rewritten and brought up to date.

C. V. CHAPIN, M. D.

✣

Child Welfare. *Nora Milnes, B.Sc. E. P. Dutton and Co., 1921. Pp. 243. Price, $2.25.*

The author's activities as director of the Edinburgh School of Social Study have led her to regard her subject largely from the economic and social viewpoint rather than

that of public health. They have also resulted in her conceiving child welfare not as the welfare of the whole child in the mental, moral and physical aspects of his development, but merely as the securing of his physical health. She states the purpose of the child welfare movement in the following narrow terms:

"The practical aim of this movement may be separated into two branches, the first being a reduction of the infant mortality rate, and the second being to afford the child a better chance to develop into a healthy adult."

Despite the restricted point of view thus announced, Miss Milnes develops her subject in a broad-minded and interesting manner. The book contains chapters on the development of the child welfare movement in England, the preparation for the conditions of child welfare work, the economic position of the father and of the mother, the child of school age, and housing.

While the conditions pictured are, of course, English, the conclusions drawn are equally applicable to America. Speaking of the many Acts of Parliament for the benefit of the people, Miss Milnes wisely points out how ineffective they remain, unless fully explained to the ignorant, ill-developed and uneducated. "What is needed is a campaign among the people," she says; and surely her words will be echoed by every public-health worker, since popular education in health is the watchword of to-day.

CHARLES F. POWLISON.

✣

Community Responsibility. *A Review of the Cincinnati Social Unit Experiment. By Courtenay Dinwiddie. With Statistics of Health Services in the Unit District by Bennet L. Mead. New York: New York School for Social Work, 1921. Pp. 171. Price, 35c.*

This report is an impartial evaluation of the much-discussed and unique experiment in community organization which covered the years 1917-20. Much of it is taken up with the criticisms that have been made of the plan, rather than with the actual results, but an appendix on the Health Services, and a supplementary statistical statement aim to supply this deficiency.

The activities of the occupational councils, as the groups of experts organized in the district were called, dealt more largely with health problems than with any others. The services inaugurated during the experimental period included at first only the infant welfare service, but gradually were expanded to include prenatal supervision of mothers, general bedside nursing, postpartum nursing supervision of mothers, preschool examinations, tuberculosis service, and later, medical examination of adults, particularly those who had had influenza, or were suffering from venereal and other communicable diseases. The health work of the Mohawk-Brighton District was so generally supported by contributions from the community at large as to eliminate any question of charity. Further, it did not consist in the substitution of a free medical service for a previous system of paid medical service; in fact the average practice of the physicians of the district increased, owing to the preventive oversight of nurses and doctors which uncovered many cases of disease and defect which would not otherwise have come to light.

The experiment made generally recognized contributions to the development of higher standards for nursing and case work. The educational value, through the dissemination of information and interchange of opinion among the inhabitants of the district was marked. Housing conditions were improved and many nuisances eliminated. In all, some 2,000 persons, out of the 13,000 living in the district, were examined at the district health station during the period, 72 per cent of these being infants and children under five. At the peak of the work, almost 3,000 persons were carried on the various nursing services, both home and health center. Of the value of the experiment in bringing the best personal hygiene to a large number of persons, there can be little doubt. But the report gives no basis for judgment of the effects of the work upon mortality and morbidity.

K. M. G.

✣

Occupational Hazards and Diagnostic Signs.—This is a revised and enlarged edition of the Guide for Medical Examiners (Metropolitan Life Insurance Co., 1921) regarding impairments to be looked for in hazardous occupations. It is a 30-page, small size, pamphlet with a vast amount of information carefully classified.

PUBLIC HEALTH NOTES

Abstracts by D. Greene, M. D., James A. Tobey and Homer N. Calver.

High Incidence of Neurosyphilis.—The Venereal Disease Division of the U. S. Public Health Service recently addressed a communication to a few of the leading syphilographers of the country regarding the high incidence and early onset of neurosyphilis. The general opinion of the men written to is expressed as follows:

"While a certain amount of the apparent increase of neurosyphilis is due to the increasing use of spinal fluid examinations and other modern diagnostic methods, I think there is no question that the ineffective use of arsenicals plays a very important part in this most undesirable tendency. The physician or health officer who is unable or unwilling to follow a syphilitic patient through a period of years, if not for life, should not attempt to treat the disease. Relapse is certainly the great outstanding fact of syphilis and the so-called modern treatment has certainly not entirely done away with it. In particular, relapse in the nervous system and infectious involvement of the mucous membranes and genitalia are so alarmingly frequent under the inadequate use of arsphenamine that every agency which employs this drug in the treatment of syphilis should be thoroughly on the alert and equipped to detect the earliest manifestations of relapse." (Stokes.)

"It appears to us that among the factors mentioned as probable causes, two are of paramount importance, viz.: (1) the tendency to undertreat; (2) the failure to interpret pathologic findings in the light of the clinical picture. (Fraser and Duncan, *British Journal of Dermatology and Syphilis,* July, August and September, 1921.) To these we would add another of almost equal importance—the tendency to interrupt treatment by periods of rest. To our minds the treatment of all syphilis ought logically to be continuous rather than intermittent. Early neurosyphilis in the form of neurorecurrences would be reduced to nil if this were done. The most crying present need of syphilotherapy is a standard treatment, sufficiently elastic to be adapted to all types of cases, and sufficiently simple to be used by the average physician . . . unless a physician feels himself competent to carry out all the necessary procedures in the treatment of any given case, he should not attempt to treat it at all. Though many cases can be successfully dealt with by the general practitioner, he should realize that the appearance of any complicating features is sufficient to warrant the transfer of the patient to a competent syphilologist." (Keidel and Moore.)

"Syphilis of the nervous system probably begins in the first year of the infection. The number of cases corresponds roughly with the total number of cases of so-called late neurosyphilis. These statements are based on the following observations:

"(a) The number of early cases showing positive findings in the spinal fluid; (b) familial types of neurosyphilis; (c) biologic evidence of a neurotropic strain of the treponema; (d) persistence of the infection *in loco,* as in aortitis, interstitial keratitis, etc.; (e) observation of patients who developed signs of early syphilis of the nervous system and who after many years died of paresis or other late degenerations; (f) no serologic evidence as yet exists showing normal spinal fluid in the early stage and its infection at a later period.

"Early neurosyphilis may manifest itself by obtrusive symptoms, by slight objective signs or be asymptomatic. Unless they are properly and thoroughly treated these early infections may persist and cause late neurosyphilis.

"Every case of early syphilis should be treated intensively with arsphenamine and mercury given systematically in courses consisting of not less than eight injections of arsphenamine or its equivalent, neoarsphenamine or silver arsphenamine, and fifteen injections of mercury; a minimum of two courses of the former and three of the latter should be administered. The treatment should be controlled by frequent Wassermann tests and a lumbar puncture made about six months after infection or earlier if indications should exist. Complete neurological examination should be made in order to detect early involvement of the nervous system and as a control for future examinations.

"The treatment outlined is not an insurance against the occurrence of neurosyphilis which

not infrequently takes place during the active administration of the drugs. In such cases intraspinal medication administered by one familiar with the proper technic may be a necessary adjunct. It is only by controlling early neurosyphilis that we can hope to prevent the later degenerations." (John A. Fordyce.)

✣

Education in Relation to Public Health.—Education in public-health matters is greatly needed. In the United States alone ignorance of cause, prevention and cure of disease is responsible for the loss of several hundred thousand lives every year, in fact for most deaths not due to old age.

The fruits of knowledge acquired by the medical profession should, as far as possible, be accessible to the public. Tests for blood, urine and sputum, bacteriological examinations and X-ray pictures, which at best are only preliminaries to treatment, are at present financially beyond the reach of the great middle class. Adequate medical aid is at present inaccessible to others than the very wealthy or the poor who are treated without charge, partly because of very expensive apparatus used for diagnosis.

People should know the part played by bacteria in the spread of epidemics and the methods available for checking disease, and no one has a better opportunity to act as teacher than the doctor. The well trained physician who treats his patients with frankness, at the risk of personal loss, does much toward bringing about a right attitude toward the medical profession. Unless the educated class is brought to appreciate the strides already made by science, its present shortcomings and the differences of opinions of doctors will make a deeper impression than the wonderful advances made. The more educated the public becomes, the higher will be the standard of those practicing the art of healing.

Among the ignorant immigrants the death-rate is far in excess of that of the native born. This of course is partly due to their low economic status, but more to ignorance as to what course to take when illness comes to them. Sometimes this leads to home remedies, sometimes to patent medicines, but fortunately often to free clinics where something is given the patient to allay his immediate distress, though because of the great number applying he is rushed through without a careful diagnosis.

Though we no longer trust in the efficacy of amulets or medicine men, there is still much mysticism and superstition regarding medicine. One can still find traces of the old theory of demoniacal possession as a cause of disease and the practice of exorcizing the malignant spirits to effect a cure. As a scientific theory this primitive belief has advantages over some of its modern outgrowths such as the breaking out of animism.

The federal government, public schools, boards of health, and life insurance companies are all doing something to disseminate information on the preservation of health and life, but far too little.—S. J. Holmes, Ph. D., *Science*, November 25, 1921, Vol. 54, No. 1404.

✣

The Hospital Library and Service Bureau.—The first year's work of the Hospital Library and Service Bureau has been most gratifying. It has clearly demonstrated the need for such a service and the extent to which it will be used. One hundred and seventy-eight people, representing twenty-one states, three provinces of Canada, the Philippine Islands, England, Switzerland, and Belgium, have called at the library during the past year. Many of these people have come for information on more than one occasion.

Inquiries by mail have been received from thirty-five states, from Canada, South Africa, New Zealand, Malta, China, Philippine Islands, and Belgium. These inquiries have been on such a diversity of subjects and on so many sub-divisions of each subject that it is difficult to classify them.

Keeping in mind the policy of the library, which precludes the giving of advice, these inquiries were answered by information as to what was being done in other institutions. As an illustration, requests for information on rules for internes were answered by sending copies of rules in force in several hospitals, giving the inquirer an opportunity to compare the rules of different institutions before compiling his own rules.

Authors and publishers of authoritative books of interest to our clientele have responded most generously to our request for coöperation. Over seven hundred books on hospital construction, dispensaries, public health, hygiene and sanitation, social service, nursing, dietetics, child welfare, occupational therapy, and subjects of like nature, of in-

terest to hospital superintendents and their department heads, have been received.

Bibliographies on thirty-two subjects have been prepared to meet immediate needs. More than a thousand pamphlets on such subjects as hospital construction, health centers, child welfare, social service, occupational therapy, social hygiene, public-health nursing, mental hygiene, dietetics, public health and allied subjects have been received and are being classified by subject. An alphabetical index to the pamphlets has likewise been prepared.

The package libraries which have been sent out by the library have proved to be one of the most attractive and helpful features of the work. These package libraries are intended primarily for persons in rural communities who do not have access to hospital journals, libraries, and other sources of information, but a considerable number has also been furnished to hospital workers in large cities who appreciate receiving information in so convenient a form.

✣

National Health Council Issues Revised Report on U. S. Children's Bureau.—The National Health Council has issued a comprehensive report on the Children's Bureau of the United States Department of Labor. This report outlines the legal authority, history and development of the Bureau, its organization, current work, personnel, the Federal Child Labor Law, and the Act for the Promotion of the Welfare and Hygiene of Maternity and Infancy. It was originally prepared on August 1, 1921, but with the passage of the Sheppard-Towner Act, the scope and influence of the Children's Bureau has been so greatly increased and so much interest has been manifested in the Bureau, that the Council considered it worth while to revise the original report, many hundred copies of which had been distributed. The report on the Children's Bureau is one of five which have been prepared by the National Health Council concerning government bureaus dealing with public health. The others are on the Division of Vital Statistics of the U. S. Bureau of the Census, the Women's Bureau of the U. S. Department of Labor, the Division of School Hygiene of the U. S. Bureau of Education and a general report covering the health activities of the United States Government. These pamphlets may be obtained without charge from the Washington office of the National Health Council, 411 Eighteenth Street, Washington, D. C.

✣

Diphtheria Preventive Work in Schools.—1. The Schick test and the control test have been applied during the past four months to more than 52,000 school children in forty-four public schools in the Boroughs of Manhattan and the Bronx, New York City. Those who gave a positive or a positive combined reaction were injected with toxin-antitoxin.

2. The results of the Schick test in these schools show that the so-called "natural immunity" depends to a large extent on contact immunity developing after repeated exposures and mild infections with the diphtheria bacillus.

3. The children of the more well-to-do classes of our population show a much higher proportion of positive Schick reactions than do the children of the poorer classes. Relative segregation of the first, crowding and close contact of the second, probably account for these results.

4. The factors of race and hereditary family tendency also seem to influence considerably the development of natural immunity to diphtheria.

5. Negative pseudoreactions were found in some schools in fully 20 to 25 per cent of the children. These figures indicate that it is strongly advisable always to use the control test along with the Schick test in children over 5 years of age so as to identify accurately the children who show a negative pseudoreaction and thus avoid giving them the injections of toxin-antitoxin.

6. The results of the Schick retests which were made in the schools after two to five months indicate that it is better to wait at least six months before testing for the development of an active immunity after toxin-antitoxin injections.

7. Two injections of toxin-antitoxin, even of a larger amount, do not give as good results as three injections of a smaller amount. The mixture should be underneutralized and yet perfectly safe for the human being.

8. Children under 6 months should not be injected with toxin-antitoxin. They are generally immune (from 85 to 90 per cent) and do not respond to these injections, as is shown when they are Schick-tested later.

9. All children from 6 months to 5 years should be injected with toxin-antitoxin. The

omission of the Schick test is not of much consequence in this age group, as most of the children give a positive reaction. A majority of these children can be reached in the homes, in milk stations, day nurseries, children's dispensaries, infant and orphan asylums, etc.

10. To place the diphtheria preventive work in the public schools of a large city on a practical basis, it is advisable, for the present at least, to simplify it for the school physician by omitting the Schick test in the younger children and by immunizing all children of the incoming classes with toxin-antitoxin.

11. No child, however, should be pronounced as being immune to diphtheria until it gives a negative Schick reaction. The Schick test should not be made until at least six months have elapsed after the injections of toxin-antitoxin.

12. School children in the grades above the incoming classes should have the Schick test and control test made before they are injected with toxin-antitoxin.

13. Only reliable outfits for the Schick test and carefully prepared mixtures of toxin-antitoxin are of value in such preventive diphtheria work.—A. Zingher, *Jour. A. M. A.*, Sept. 10, 1921, 835. (*D. G.*)

✣

Chrysops Costata, a Blood-Sucking Fly from Cuba.—Last winter, in the cool and dry season from November till March, I was bitten in Habana repeatedly by a blood-sucking chrysops fly. Curiously enough, none of the Cuban residents knew the fly and even good observers, experts of tropical medicine and entomology, did not remember having had similar experiences.

I am informed by Dr. W. Horn, the director of the German Entomological Institute in Berlin-Dahlem, to whom I sent several specimens for determination, that the fly is the well known Chrysops costata Fabr. of Central America.

The chrysops flies are not without importance in the human pathology. I mention only the role played by the African species, Chrysops dimidiatus, in the transmission of Filaria loa. Considering the most voracious manner in which, according to my experiences, the fly sucks the blood of human beings, it does not seem impossible, that still other relations of chrysops flies to infectious diseases of man may be discovered in the future.

The experiences that I have had with this genus are the following: All my observations were made in the garden of the Las Animas Hospital in Habana. It is a large piece of land with many trees, shrubs and pasture, and a small creek runs through it, which perhaps may offer the fly the facilities for breeding places, in or near the water. Usually there are feeding on the grassland some horses, which may ordinarily furnish the necessary blood for the fly. There are also some cows and several small animals. When passing through the places where the horses usually stand, I have been bitten about a dozen times by the fly, and always on the part of the head which has the hairs. The fly has bitten me at any time of the day, at noon, when the sun was standing high, and in the morning before sunrise.

Each time I never remarked anything of the approach of the fly, but quite suddenly and unexpectedly I felt a very painful sting, as with a needle, always on some part of my head, so that I was always immediately



Chrysops Costata

induced to touch the place with my hand. The first times I crushed the fly in that way. But later I could easily catch it living, because it was so eager in sucking blood that it was not driven away by the movement of the hand. When caught it does not try to escape, but remains in a rather passive position between the fingers. Generally I found it filled with a little blood.

It seems that the fly is not very common here. Besides those specimens which I caught on my head, I scarcely remember to have seen it, either near the horses or on them.

The chrysops flies are widely distributed in the whole world in a great number of species and are easily known from the black band on the wings. Also the species called costata is well known and a detailed description does not seem necessary. It is the purpose here merely to call attention to it as sucking human blood.—W. H. Hoffman.

Am. Jour. of Trop. Med., Vol 1, No. 5, Sept., 1921.

National Health Council Meets in Washington.—The annual meeting of the National Health Council was held on January 5, at the American Red Cross Building, Washington, D. C. Dr. Livingston Farrand, President of Cornell University and former chairman of the Central Committee of the American Red Cross, was elected chairman of the Council for the year 1922. Other officers elected were Dr. Lee K. Frankel, vice-chairman; Dr. S. J. Crumbine, recording secretary, and Dr. Wm. F. Snow, treasurer. Dr. D. B. Armstrong was appointed executive officer for 1922. Other members of the staff are James A Tobey, Washington representative and Lawrence Marcus, executive assistant. Representatives and delegates at the meeting included W. Frank Persons of the American Red Cross, Dr. Lee K. Frankel of the American Public Health Association, Dr. W. F. Snow, American Social Hygiene Association; F. J. Osborne of the American Society for the Control of Cancer, Dr. S. J. Crumbine of the Conference of State and Provincial Health Authorities of North America, Dr. Victor C. Vaughan of the Council on Health and Public Instruction of the American Medical Association, Courtenay Dinwiddie of the National Child Health Council, Dr. Frankwood E. Williams of the National Committee for Mental Hygiene, Miss Elizabeth Fox of the National Organization for Public Health Nursing, Dr. C. J. Hatfield of the National Tuberculosis Association and Surgeon General H. S. Cumming of the United States Public Health Service.

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Public Health in the Bulletin of the League of Red Cross Societies.—The October-November, 1921, number of the *Bulletin of the League of Red Cross Societies,* Geneva, Switzerland, is more like a health magazine than anything else. At the beginning are speeches by Sir Claude Hill and Dr. Réne Sand, director-general and secretary-general, respectively, of the League, in which they outline the primary purposes of the League as the promotion of good health in every country. Then comes a message from the chairman of the Belgian Red Cross to Belgian doctors, in which he discusses the need for health work. The news of the various national Red Cross organizations which follows seems to contain mostly items concerning child welfare and public-health efforts all over the world. The general news sections contain articles on the Children's Federal Bureau of the United States, a Czecho-Slovakian Baby Week, and then a section entitled "Medical Chronicle" tells of the training of public-health nurses and social workers in Belgium, of health education in China, a health circus in Czecho-Slovakia, anti-venereal disease campaigns, mental hygiene, and child welfare in France. An abstract of Prof. Aaron Arkin's article, "The Unsolved Problems of Preventative Medicine," from THE AMERICAN JOURNAL OF PUBLIC HEALTH appears next, together with a story of the National Health Council in the United States. Other material is concerned with sex hygiene, control of tuberculosis, and health education and training. The bulletin is printed in English and also has editions in French, Italian and Spanish.—(*J. A. T.*)

✣

The Present Prevalence of Venereal Diseases.—Various observers have estimated that the amount of venereal disease in the United States ranges anywhere from 2 to 80 per cent of the entire population. In an interesting article in *Social Hygiene,* Lawrence Marcus attempts to make an estimate based on scientific analysis of the facts already at hand. He cautions us, however, against holding his figures as rigidly accurate and wishes his thesis to stand rather as a target to be aimed at by those having better or more reliable data. He reviews the figures of Vedder, who based his estimate of 20 per cent on examination of soldiers of the "old" army; the figures of Banks, whose rate of 2½ per cent was obtained by finding about 9 per cent infection in sailors and then guessing at the rate for the general population; the report of the British Royal Commission, which thinks that not less than 10 per cent are infected with syphilis and more with gonorrhea; and the figures of the surgeon-general of the army, which showed that 5.6 per cent of the second million drafted men had venereal disease. In an elaborate discussion, together with a searching examination of the sources of the figures quoted above, Mr. Marcus concludes that at present the amount of venereal disease that can be found in the United States in all persons, regardless of age or sex, is 8.12 per cent. He allows an error of 2 per cent, so that the actual percentage might be anywhere between 6.12 and 10.12 per cent. Since the 1920 census placed the population at about 104,000,000, this

would mean that approximately 8,450,000 persons in this country are infected with venereal diseases. Mr. Marcus further subdivides these figures into 6¼ per cent gonorrhea, 1¾ per cent syphilis, and ¼ per cent chancroid. Until some one with a better system of analysis or with absolutely accurate and convincing data can upset these results, the terms must stand as a reasonable and conservative estimate.—(*J. A. T.*)

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Committee on Salary Standards Compiling Statistics.—About three years ago, Dr. C. St. Clair Drake, Secretary of the Conference of State and Provincial Health Authorities of North America, collected and published financial statistics of the state departments of health. The data on salaries which was included in these statistics allowed comparisons to be made between the various states and is said to have resulted in necessary salary increases in a number of instances. Since it is the belief of many public-health workers that salaries in this field are generally inadequate, the American Public Health Association has appointed a Committee on Salary Standards to study the present remunerations in the health field and recommend minimum standards. The members of this committee are: Dr. Carrol Fox, United States Public Health Service, chairman; Dr. S. J. Crumbine, state health officer of Kansas; Dr. J. A. Ferrell, International Health Board; Dr. J. R. Phelps, U. S. Navy Medical Corps; Mrs. Maud Wood Park, National League of Women Voters; James A. Tobey, National Health Council, secretary.

A letter has recently gone out from the secretary of this committee to the various state departments of health requesting data from which the desired salary statistics may be compiled. The committee will issue its report later.

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Archbishop Hayes Urges Coöperation of Catholic Clergy in Promotion of Public Health.—The spirit of coöperation which public-health workers are meeting with is well illustrated in the following letter which Archbishop Hayes recently sent out to the Catholic clergy of New York:

Reverend and dear Father:

The month of November promises to make many claims, temporal as well as spiritual, on our attention. It would be really impracticable for me to comply with innumerable requests, now pouring in, for a pulpit word in behalf of many praiseworthy undertakings of common benefit to all.

There is one, however, I consider of so much importance that I shall ask the Reverend Pastors to take particular notice of, since it concerns public and personal health.

A nationwide movement is under way to help arrest the fell disease of cancer. Several prominent Catholic physicians have appealed to me to urge our Catholic people to take advantage of the literature that will be placed at our church doors next Sunday with regard to the control of cancer.

It appears that this terrible scourge is a menace to all and is on the increase, whereas simple knowledge and timely precaution will save numerous lives from this affliction.

Remember Christ's mission was one of healing both soul and body. His compassion for suffering humanity stands out clearly in Holy Writ. His miracles generally were wrought to cure disease and relieve pain. In imitation of Him the Church, by prayer, sacrament and teaching, urges man to develop a healthy body, a clean mind, and a spotless soul.

Cancer Week will be held from October 30 to November 5. Public lectures will be given throughout the city.

The following week, November 8-19, the Health Institute conducted by the American Public Health Association will convene, with a Health Exposition, in which our City Department of Health is deeply interested. The idea is to bear to the people of New York a message of health for the prevention of disease, and the better understanding of personal hygiene and of general sanitation.

I trust our people will avail themselves of the opportunities provided, not only for their own physical betterment, but for the common social welfare of our beloved city.

Praying that this letter, written under the patronage of St. Raphael, the Archangel called by St. Gregory "The Medicine of God," may prove of some service in bestirring many to increased helpfulness and carefulness in the interests of health, I am, with a blessing,

Faithfully in Christ,

PATRICK J. HAYES,
Archbishop of New York.

✠

Italy Combats Social Diseases.—The Italian Institute of Hygiene, Prevention and Social Relief seeks to embody and diffuse through-

out the nation the principles and methods of social medicine. The Institute acts as a center of observation and study of the so-called social diseases and of the preventive measures, official and unofficial, designed to control and combat them.

To this end it possesses a library already grown to considerable proportions, thanks to the courtesy of the Italian Foreign Office, the Ministry of the Interior, and the presidency of the Medical-Scientific Press of Italy, through whose intervention the Institute has been assured of the official and semiofficial documents of foreign states and of Italy, dealing with the problems of social science and medicine. The material thus accumulated is used by the experts of the Institute for the preparation of propaganda in its various forms, which is further disseminated by the Institute throughout political circles, in schools and the army, and among the industrial and agricultural classes.

✠

Tabulation of Children's Year Weighing and Measuring Tests Shows Heights and Weights of American Children.—The largest mass of data on the heights and weights of children under 6 years of age ever brought together in this country has been made public by the U. S. Department of Labor through the Children's Bureau. The report entitled "Statures and Weights of Children Under Six Years of Age" is based on records secured with the coöperation of individuals and organizations throughout the country in connection with Children's Year. Besides showing the present average heights and weights of the younger children of America, these records form a basis for measuring possible future progress in physical development. Of the 172,000 records tabulated, all of which met certain requirements as to accuracy and completeness, 167,024 were records of white and 4,976 records of negro children.

Boys under 6 years of age were found, according to the report, to average from one-third to one-half an inch taller and to weigh about a pound more than girls of the same ages. They were also heavier than girls of the same stature. California children were found to be slightly taller and heavier than other groups in the study—a difference for which climate or some factor other than the nationality composition of the population, which closely resembles that of other parts of the country, is held responsible. The shorter stature noted in the New York City group is, however, attributed to the presence in that group of a larger proportion than in the country as a whole of short-statured races, such as the Italian and Jewish.

A selected group of children of native parentage showed very little deviation in average height and weight from the averages of the larger group including children both of native and foreign-born parents. Children in rural areas slightly exceeded the average for city children in both stature and weight, while the heights and weights of negro children under 4 years of age as compared with white children of the same ages showed a deficiency in weight of 11 ounces for boys and 9 ounces for girls, and stature deficiencies of two-fifths and one-fifth inches respectively. These deficiencies, greatest at 1 year of age and under, may result from the poor nutrition and unfavorable social and economic conditions that cause a high mortality rate among colored infants, or, perchance, may be due to a racial difference in rate of growth. At five years of age practically no difference in average height and weight is found between white and negro children.

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Child Health Work in Austria.—The new medical program of the American Red Cross, which went into effective operation in Vienna on July 1, has given a new impetus to Austrian child-health work, which was threatened with complete extinction owing to financial difficulties. The Red Cross has taken over 100 child-health stations which were about to close from lack of funds, and has guaranteed financial support for a period of one year.

Austria was a pioneer in scientific child-health work, and is still in many ways far in advance of other nations. Vienna's first child-health center was established in 1904. A few months later several similar centers were opened which operated in the same manner and were supported by the parent organization.

The work of the stations grew slowly but steadily until 1911, when the interest in it was greatly stimulated by the International Congress, which met that year in Berlin for discussion of the care of children of the nursing age. Stations were soon opened for the examination and advice of pregnant women and it was required that all children born in Vienna should be registered. In 1914, at the

beginning of the war, child-health work in Austria was showing good results.

After the war, when the appalling condition of the children became so glaringly apparent, and foreign agencies came to Vienna with the idea of giving what aid they could to the Austrian people, especially the children, it became necessary to have many stations for the examination of children to determine which ones most needed nourishment.

After the general examination, the mother of each child received a certificate indicating the child's health class. If this were one of the categories rationed through the Friends' depot, the mother could obtain at the station where her child had been examined a card, signed by the physician, which entitled her, on registering at the Friends' distribution depot named in the card, to draw four fortnightly food-packets for the child, or for herself, if she were nursing the child. Each packet contained a quantity of food, sufficient for two meals a day for fourteen days for the child to which it was issued.

In January, 1921, it was found that the city could not support all the centers which had been established. When, in 1921, the American Red Cross decided on a child-health program, it was thought that the best plan was to make use of the stations which were already established and to retain, when possible, the personnel operating them. It was also decided that, while the American Red Cross would be responsible for the plan of operation, the payment of the personnel and the provision of the medical supplies, the local authorities would furnish the buildings or rooms for the centers, and provide the heat and light. In conjunction with the American Red Cross they would choose the personnel, the American Red Cross reserving the right to refuse any undesirable selections.

A salary scale was also agreed upon, which, at present Austrian exchange, makes the cost of operations for each station considerably less than $1,000 per year.

Short, practical courses in the care of infants and young children are given to all nurses and workers at the various centers. Much time is spent in home visiting. During the year the number of home visits made will probably be about 180,000, an average of 1,800 visits per station, handled by one worker at each station.

The relief work in connection with the health centers consists of free food rations for children under 4 years of age, the provision of cod liver oil to all children who need it and whose parents are unable to buy it, and the distribution of clothing.

The preparation of milk for infants who are not breast fed is another valuable feature of the work.

✣

Italian Preventorium For Infants.—The Italian Red Cross took over last June the "Emilio Maraini Institute," founded in Rome in June, 1920. This infant home is considered a model from the social welfare point of view. The Emilio Mariani foundation has as its sub-title: "For the infants of poor mothers," and has for its object "to shelter, nourish, and assist poor children of both sexes, born in or out of wedlock, whose mothers are unable to give them breast feeding owing to illness, especially of a tuberculous nature."

The rules of the institution also contain the following provisions: to care for the infants until entirely weaned; no nursing mother, whether married or unmarried, taken into the institute, is separated from her child; the institute undertakes, when necessary, the moral regeneration of the women it receives, making a point of persuading mothers to recognize their children; finally, the directors of the institute have established relations with charity homes for children so as to prevent the latter returning to dangerous home surroundings after the institution in question has finished with them.

Accepting the principle that human beings, although not born tuberculous, are exposed to this danger, and that "the danger of tuberculosis is all the greater in the case of children born of tuberculous mothers," the Maraini preventorium intends to solve the prophylactic problem of tuberculosis from the very beginning by removing the infant from the infected atmosphere.

For this reason, Professor Valagussa, who has charge of the Maraini institution, can affirm that it differs from other organizations of the same sort, inasmuch as it takes up the fight against tuberculosis from the moment the new-born infant utters its first cry, that is to say, when the lymphatic system is still free from all tuberculous infection. According to the statutes and rules of the institute, it is a condition for admis-

sion of children that they must not have passed the third month of life.

Whenever the doctors of the poor districts notify the institute that there is a tuberculous woman about to give birth, a physician belonging to the institution is sent to examine the patient and to make the necessary arrangements so that the child is placed in a special room, where he is kept under observation, until the incubation period of the exanthematous diseases is passed, being meanwhile subjected to minute examination so as to be able to establish a clinical record regarding his condition at the time of admission.

The children adopted by the Institute are nourished in the natural way, i. e., by breast feeding. For this reason, wet nurses are enrolled according to a system which offers all the necessary guarantees and which includes a clinical examination. One of the primary objects of the institute is to supervise the personal hygiene of the nurses as well as their food, this being rigorously controlled.

According to the report for the first year of work of the Maraini foundation, 113 babies were taken in, including children of sick mothers and of wet nurses. Of these ten died, including two prematurely born.

In taking over the Maraini foundation, Senator Ciraolo, chairman of the Italian Red Cross, declared that not only would the institute be maintained on the high level which it had reached, but that it would be their endeavor to make this institute the nucleus of a children's city, and to see to it that other foundations of this sort follow, to carry on the good work. The queen of Italy has expressed her intention of confiding to the care of the Italian Red Cross the infant dispensary which she has founded, so that it may work in close contact with the Maraini institute.—*Bull. League of R. C. Societies,* Sept., 1921.

✠

Other Diseases Are Causes of Heart Disease.—"Heart disease is not communicable and its victims can be released from the fear of sudden death and adjust themselves to almost normal freedom in life."

This is the message of hope brought to health officers and public-health nurses by Dr. Haven Emerson, former commissioner of health of New York, in a recent address in Michigan.

"Whenever heart disease appears among children," says Dr. Emerson, "it is usually due to insufficient convalescence, or improper care during recovery from illness. The problem of prevention and elimination of tuberculosis and the prevention of heart disease is very similar, with the exception that heart disease is due to infection with many different kinds of bacteria and to many faulty habits and modes of life.

"People must be impressed with the fact that in contracting scarlet fever, typhoid fever, measles, sore throat, rheumatism, tonsilitis and other acute infectious diseases, the victim is in danger of developing heart disease, an affection much worse than the original disease which caused it. It is one added reason for paying attention to prevention of diseases and proper convalescence. The person who has heart disease must be protected against reinfection; he should receive the medical care which will give him the largest amount of health efficiency."

Heart disease, according to Dr. Emerson, has replaced tuberculosis as the cause of the largest number of deaths in cities and country and among all races. While heart disease is not preventable, the diseases causing it are preventable, and it is possible to postpone death among those affected with heart disease.

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Acknowledgment.—Through an oversight, it was neglected to state, in connection with "A Bibliography of References to Health Legislation," published in the December issue of the JOURNAL, page 1090, that this Bibliography originally appeared in *Public Health Reports,* August 12, 1921. Copies of it can be obtained from the United States Public Health Service, as reprint No. 684 of the *Public Health Reports.*

LEGISLATION—FEDERAL

From the Bi-Weekly Report of the National Health Council, December 5-19, 1921

PLANS OF CONGRESS

The special session of the Sixty-seventh Congress adjourned November 23, 1921. The regular session convened December 5, and will be in session, probably, until the middle of the summer. Those bills relating to health which were introduced in the first session and not acted on are now before the second session without having to be reintroduced. There are, therefore, about 150 measures which affect public health to some degree now before Congress. A complete list of these is contained in the index to Statement No. 15, supplemented by Statesments Nos. 16 and 17, which bring it up to date.

PROGRESS ON MATTERS PREVIOUSLY CONSIDERED

A. 1. Government Reorganization. Plans of the Smoot-Reavis Joint Congressional Committee. After a conference with Walter F. Brown, chairman of the Joint Congressional Committee on Reorganization of the Federal Departments, on December 2, 1921, Dr. D. B. Armstrong reported that Mr. Brown outlined the following plans of his committee:

(a) The Smoot-Reavis Committee expects to prepare in one bill all the plans for federal reorganization.

(b) A department of welfare will be included. In it will be placed all of the present welfare activities of the government, but no new ones will be established, owing to the desire for federal economy.

(c) The plans for this department of welfare will follow, in general, those outlined in the Fess-Kenyon bill for a department of public welfare. There will be divisions of health and of education.

(d) The committee is working on a definite schedule, and thus far has kept up with that schedule. They expect to introduce this bill in Congress by February, 1922, and hope that it will be passed by June. Subsequent conference with General Sawyer confirmed Mr. Brown's statement.

A. 2. Promotion of the Welfare and Hygiene of Maternity and Infancy. Plans for administration. The Children's Bureau of the U. S. Department of Labor, which administers this law, is now working on plans for its operation. The Bureau has issued several statements regarding the law, including a pamphlet giving the text of the act and maximum amounts available to each state, and an article entitled "Facts of Interest About the Sheppard-Towner Act for the Promotion of the Welfare and Hygiene of Maternity and Infancy of November 23, 1921," which was published in the January edition of *Mother and Child*, the monthly magazine of the American Child Hygiene Association, Baltimore, Md.

During the 1921 legislative sessions, six states passed laws accepting the proposed act. They include Delaware, Minnesota, New Hampshire, New Mexico, Pennsylvania, and South Dakota. Action taken by any of the twelve states whose legislatures meet in 1922 will be reported in the *Bi-Weekly Bulletins on State Health Legislation* to be issued by the U. S. Public Health Service with the coöperation of the National Health Council.

S 2708. Medical Supplies for Russian Relief. This measure, introduced by Senator Wadsworth, was passed with little opposition on December 6, 1921, by the Senate. The bill then went to the House and was referred to the Committee on Military Affairs. It provides that the Secretary of War shall turn over to the American Relief Administration in Russia such medicines, medical and surgical supplies for which the department has no further use.

H. R. 9237. Urgent Deficiency Bill; passes Senate and goes to conference. The bill, which includes a number of appropriations in the interest of public health, passed the House November 22, 1921, and went to the Senate, where it was amended and passed that body on December 12, 1921. Among the few changes made by the Senate that concern public health was an appropriation of $1,000,000 made immediately available to the director of the U. S. Veterans' Bureau to be used in providing additional hospital and dispensary facilities for disabled war veterans. This money can be used for new construction to provide accommodations for officers, nurses or attending personnel at hospitals now in the course of construction, or in any other improvements deemed necessary by the director.

H. R. 9291. To Reorganize and Promote the Efficiency of the U. S. Public Health Service. Introduced by Representative Dyer in the special session of Congress, this bill was reintroduced by the same author on December 5, 1921, and referred to the Committee on Interstate and Foreign Commerce. A summary of this bill in Statement No. 13,

p. 5, (A. J. P. H., December, 1921) gives full details of its provisions. It would commission five hundred and fifty officers of the reserve in the regular service, provide for equitable promotions, set the term of the surgeon general at four years and make his selection by the President obligatory from among the commissioned personnel, and establish corps of nurses, dietitians and reconstruction aids. A similar measure was introduced in the Senate at the special session by Senator Watson of Indiana.

A. 6. Hospitals for Ex-Service Men. Secretary of the Treasury A. W. Mellon has announced his approval and authorization for the expenditure of $3,900,000 for additional hospital facilities for disabled ex-service men. These sums have been previously appropriated by Congress. They will be made as follows:

(a) $2,500,000 to provide a hospital for tuberculosis and nervous and mental cases among former negro soldiers at Tuskegee, Alabama. The institution will contain 1,000 beds.

(b) $1,400,000 for a permanent soldier hospital for nervous and mental cases at Palo Alto, California. This hospital is now operating with temporary buildings, which will be made permanent and the capacity increased to 1,000 beds.

NEW LEGISLATION

H. R. 8928. Government Salary Reclassification. Passed the House, December 15, 1921. Referred to Committee on Civil Service of the Senate, December 15, 1921. This measure, known as the Lehlback Bill, provides for the classification of civilian positions within the District of Columbia and in the field service. While its terms are open to future construction, it appears that the bill in its present form would reduce the pay of medical men in the Public Health Service and disturb the present salaries and commutation privileges now granted to these officers, privileges which are similar to those in the army and navy.

The bill puts all civilian employees of the government into the following eight groups: professional, sub-professional, clerical, institutional, custodial, inspectional, police and criminal investigation service, and fire service. Under the first group are expressly included the following callings: bacteriology, biology, chemistry, child hygiene, dentistry, dietetics, engineering, medicine, pathology, pharmacy, social economics, statistics, and therapeutics. The professional group is then arranged in six grades. The first is a junior one for those performing the simplest kinds of professional work, and has salaries of $1,620, $1,740, $1,860, and $1,980. Grade two would include those classes of positions, the duties of which are to perform under general direction "assigned professional work requiring professional training and previous experience but not the exercise of independent judgment." The compensation in this grade would be $2,100, $2,280, $2,460, and $2,640. Grade three includes those who perform independently or with associates from the lower grades responsible work requiring extended training and considerable successful previous experience. Salaries here range from $2,820 to $3,540. Grade four is that in which independent and highly expert professional work would be performed, or the administration of a minor division of a large organization or a major division of a small organization. Salaries would be from $3,720 to $4,620. Grade five includes those acting as assistant heads of large professional organizations, administrative heads of major divisions, heads of small organizations or consulting specialists. Here the salaries would be from $4,860 to $5,460. Finally, grade six includes the technical and administrative heads of major professional or scientific bureaus. The compensation in this grade is from $5,400 to $6,600.

From the above outline it would seem that many of the officers of the Public Health Service would fall in grade two. Owing to the character of work and present type of organization of the Public Health Service, it must have a mobile corps of trained sanitarians available for quarantine and epidemic duty at any place where emergencies arise, as well as in the operation of its hospital system for disabled service men. It is believed by many that it would not be practical to classify an officer according to the duty performed; for, in the Public Health Service he might be performing one duty to-day and an entirely different one to-morrow. The requirements of the medical personnel of the Public Health Service are essentially the same as for the medical corps of the army and navy. An attempt is accordingly being made to have the Public Health Service exempted from the provisions of this bill.

H. J. Res. 229. Suppression of Traffic in Opium and Habit-Forming Drugs. Introduced

by Representative Kahn, December 7, 1921. Referred to the Committee on Foreign Affairs. This resolution asks that the American delegates to the Conference on the Limitation of Armaments request the foreign delegates to bring about an early conference for the purpose of suppressing the manufacture and transportation of opium, morphine, cocaine, and other habit-forming drugs among the nations of the world. The chairman of the House Committee on Foreign Affairs also issued an announcement that the committee would make a thorough investigation into the increase in the use of drugs in this country and attempt to trace the sources of supply.

H. R. 9490, Medical Service for Coast and Geodetic Survey. Introduced by Representative Winslow, December 12, 1921. Referred to the Committee on Interstate and Foreign Commerce. This bill authorizes the U. S. Public Health Service to render medical aid to the officers and seamen of the Coast and Geodetic Survey in the same manner that the medical corps of the navy gives medical service to its officers and men. The bill also directs that, when practicable, a medical officer be detailed to each of the vessels of the Coast and Geodetic Survey.

H. R. 7456. Public Health in the Tariff. Passed the House, July 21, 1921. The tariff bill contains the following duties of interest to health workers:

Calomel and other mercurial compounds, 30 per cent ad valorem.

Chemicals, drugs, medicinal substances imported in capsules, pills, tablets, lozenges, troches, ampoules, jubes, or similar forms, 25 per cent ad valorem.

Medical compounds containing alcohol, 20 cents per pound and 25 per cent ad valorem if 20 per cent of alcohol; 40 cents per pound and 25 per cent ad valorem for 20 to 50 per cent alcohol; 80 cents per pound and 25 per cent ad valorem for over 50 per cent alcohol.

Formaldehyde products, 25 per cent.

Dentifrices with alcohol, 40 cents per pound and 60 per cent ad valorem; without alcohol, 60 per cent ad valorem.

Surgical and dental instruments valued at not more than $5 a dozen, 60 cents per dozen; valued at more than $5 a dozen, 12 cents per dozen for each $1 per dozen, and in addition to all of foregoing, 35 per cent ad valorem.

Books of all kinds, 20 per cent ad valorem.

Tooth brushes, 35 per cent ad valorem.

These are only some of the articles mentioned. In the 173 pages of Title I, which gives the dutiable list, may also be found drugs, chemicals and medicines in great variety, optical products, microscopes, laboratory instruments, milk products and food of every description.

The free list (Title II) contains:

Antitoxins, vaccines, viruses, serums, and bacterins, used for therapeutic purposes.

Quinine and its compounds.

Radium and its salts.

A number of drugs are also included.

STATE HEALTH NOTES—GENERAL

Alabama

The report of the malaria control central administration unit of the Alabama State Board of Health just issued shows a big increase in malaria control work over 1920.

This unit, operating on a county-wide basis in five counties in the state, reports that during 1921 there were done about 110 miles of ditching, 1,300 miles of oiling, and 86 miles of clearing, under the direction of the unit. In addition 136 mosquito breeding ponds were stocked with top-minnows. There were given a total of 110 lectures to audiences numbering 7,393; 141 demonstrations of some phase of the work at which 1,243 people were present, and 346 conferences at which 2,253 public officials and other interested persons were present.

During the year 64 malaria projects were carried out in Alabama, protecting a population of 125,000 and an area of 134 square miles. During the preceding year 12 such projects were carried on, protecting 32,500 people and an area of 34 square miles. The cost per capita was $0.64 in 1920, and was reduced to $0.48 in 1921.

The State Board of Health comtemplates a big expansion of malaria control work in the state during 1922, with an organization based on the county-wide work as carried on during 1921.

This work will be done under the direction and control of the various county health officers, the State Board maintaining a staff of trained men to direct and assist these county health officers. It is expected that at least 15 counties will be thoroughly worked, and that several hundred square miles and several hun-

dred thousand people will be protected from the disease.

A demonstration in malaria control work recently carried out by the State Board of Health at Demopolis, Alabama, shows what financial returns may be expected from malaria control work properly carried out.

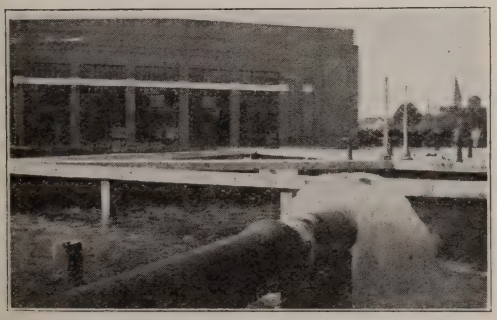
A house to house canvass was made and the actual cost of malaria to the people was estimated from doctor's bills, medicines and loss of wages, both for the year the work was carried on and also for the previous year. The results were as follows:

	Cost: Doctors and Medicines	Economic loss	Total loss
Year previous to work	$3 110	$23,135	$26,245
Year of work	106	415	521
Saving	$3,004	$22,720	$25,724

The number of cases of malaria was reduced from 194 to 12. A most striking fact is that the people of Demopolis effected a saving of $25,724 by doing work costing but $3,000. That is, they obtained a return in actual money saving of several hundred per cent on their investment.

Florida

The State Board of Health of Florida, through its Department of Engineering Bureau, has ordered the city of Jacksonville to cover the reservoir from which the city's water supply is furnished. This huge basin, 150 by 250 by 12 feet deep is supplied by fifteen artesian wells through the big inlet shown in the picture. The estimated cost of concrete slabs about six inches thick for the cover is $27,000.



Inlet of the Reservoir—Jacksonville

A few years ago this reservoir was isolated. Now it is in the center of the city with people living all around it. The basin was originally left uncovered purposely by the authorities in order that the water might be aërated, thus eliminating odors such as are emitted from artesian wells. The vigilant eyes of health officials have been watching and analyzing this water and have found it contaminated by the dust from the streets. The whirring automobiles and street cars now keep a scum of dust upon the water that settles in and on the sides of the reservoir, and it has become a menace to the health of the city. In the event of an accident, the city has a three million gallon reservoir built of concrete above the ground, thoroughly protected from dust and insects. The analysis of this water shows it to be far superior to that of the open reservoir.

When the cover has been placed on the reservoir, Jacksonville, getting as it does, its water supply from artesian wells, clear and cool, will have the finest water to be had.

The pressure is direct from two mammoth pumps, one of which is running all the time. In addition to this, Jacksonville has a high pressure system with special mains supplied by electrically driven rotary pumps, the stream of which will drive a hole through a wall because of the immense pressure. This is used in case of fire only.

The domestic water supply is furnished through meters, thus eliminating all wastage. The sanitary patrolman reports all leaks, which receive immediate attention. At the plant oil is used for the making of steam in the boilers, avoiding smoke nuisances.

Illinois

Arrangements have been completed for conducting a public health institute in Chicago, March 13-18, 1922. The institute was scheduled by the United States Public Health Service while the State Department of Public Health worked out the program and engaged most of the lecturers. The institute will be under the direction of Dr. I. D. Rawlings, state director of public health.

The Chicago institute will deal only with the subject of venereal disease control and allied problems. Courses will be given in syphilis, gonorrhea, the delinquent, clinic management, work of the venereal disease nurse and health education. Lecturers include S. P. Thrasher of Chicago, Miss Jessie Binford of the Interdepartmental Social Hygiene Board, Judge J. W. Schulman of Chicago, Dr. H. G. Irvine of the Minnesota State Board of Health, Dr. John Dill Robertson, health commissioner of Chicago, Dr. Lee A. Stone of

Chicago, Judge Harry Olson of Chicago, Mr. Bernard C. Roloff of the Illinois Social Hygiene League, Dr. G. Frank Lydston of Chicago, Dr. O. S. Ormsby of Chicago, Dr. Louis Schmidt of Chicago, Dr. W. A. Evans of Chicago, Albert Webster of Chicago, Dr. John H. Stokes of the Mayo Foundation, Dr. Stewart Paton of Princeton University, Dr. Martin F. Engman of St. Louis, Dr. I. A. Abt of Chicago, Dr. Holdie Hoffman of Chicago and Dr. C. C. Copelan of Springfield.

In addition to the regular courses, the institute will be featured by daily luncheons with special speakers. Programs of the institute have been printed and may be obtained upon request from the Illinois State Department of Public Health.

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A recent investigation by one of the state health officers into circumstances that surrounded an outbreak of eleven cases of typhoid fever in St. Charles Township, Kane County, brought to light an unusually tragic sequence of events and demonstrated afresh the value of milk pasteurization. The primary case appeared on a farm where milk is produced and sold in Chicago. This case was described as being neuralgia and when the patient failed to improve she was removed to Aurora. Shortly afterwards two other cases appeared on the farm, one of which proved fatal. In the meantime the milk from the herd continued to be sold in Chicago. It was also used for food on the farm by a threshing crew, and a few neighbors obtained it in small quantities. Among those who used the milk raw, eleven cases of typhoid fever developed, three of which terminated fatally, while no cases were reported from Chicago where the bulk of the milk was distributed after pasteurization.

It is reported that no contacts on the farm were immunized with triple typhoid vaccine, and that no quarantine or sanitary precautions were established until most of the eleven cases had developed. In view of these circumstances, together with the additional contention that a correct diagnosis was not made until several cases were far advanced, the families have, entered suit against the physician employed, charging him with neglect of professional duty.

Indiana

Robert Burdine, leper, who was discovered in Indianapolis with anesthetic leprosy about two years ago, was placed under quarantine by the State Board of Health and treated with the ethyl ester of Chaulmoogra oil. The board has now pronounced him cured and terminated the quarantine. The most careful search does not find in the nose or elsewhere the lepra bacillus which at the beginning of the treatment was easily discovered, every slide showing the organism. The State Board of Health is compelled to assume that this leper is cured because there is no evidence that he has the disease and the law therefore cannot hold him.

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The State Board of Health at its regular quarterly meeting January 11, reorganized its division of infant and child hygiene so that it is possible to accept the national appropriation which has been made for the different states. Governor McCray has accepted in the name of the state the appropriation of the national government and things will be in readiness when the appropriation is distributed to go ahead with the work as vigorously as possible. In this work the State Board is now making arrangements to carry lecturers on public health over the state in flying machines.

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A public health institute will be held in Indianapolis, February 13 to 18, under the auspices of the U. S. Public Health Service, the Indiana University School of Medicine and the State Board of Health. The institute course of lectures will begin at 1 p. m., Monday, February 13, and close at noon Saturday, February 18.

In addition to the lecture course there will be a series of clinics on tuberculosis, a series of clinics on the venereal diseases, an intensive laboratory course and a woman's conference. The entire course will be so arranged that those in attendance may select the subjects of greatest personal interest and may plan their attendance accordingly.

Ample opportunity will be given for personal conference with the various lecturers, with opportunity and provision for group meetings.

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The State Board of Health has established a traveling milk laboratory and engaged Mr. Frank C. Wilson to conduct it. The milk laboratory is set up in each city he visits and analysis of milk is begun. Samples are collected from places where milk is sold and analysis as to their bacterial content is made and a numerical index found for the purity

of the milk supply. The quality of the milk must be according to the requirements. At Huntington school children are being supplied with the school lunch daily, working men are drinking milk who rarely used it before and coffee and tea are being discarded.

Michigan

"Men, primarily men, not binder twine, horse collars or reed furniture, should be the product of state penal and correctional institutions."

So asserts Dr. R. M. Olin, commissioner of health, who believes that proper supervision of the health of the inmates will play an important role in their rehabilitation. The new bureau of institutional health administration of the State Department of Health, headed by Dr. R. A. Macgregor, has had charge of this work since September 1, 1921, though the department has been actively concerned with institutional health surveys since the investigation of Ionia Reformatory last February.

Approximately 4,000 physical examinations have been made since the start of the work. Complete health inventories are kept of every case and advisable corrections and treatment carried out. Inmates are now being paroled free from disease and in better health than ever before in their lives, according to Dr. Macgregor. "This raises their self-respect," he says, "and is a big factor after release."

Full time physicians are now installed at the Ionia Reformatory, the Jackson State Prison, the Industrial School for Boys at Lansing, and the Industrial School for Girls at Adrian. Authorities are now endeavoring to secure physicians to fill several other vacancies. A staff of three dentists is in charge of dental hygiene at the institutions. Two additional dentists will be employed to handle this phase of the work adequately.

New York

In putting good health alongside of good conduct and both alongside good records in the three R's, the schools of Rochester have taken an important stand. "Credit given for athletics." Nothing new about that. But "Credit given for nutrition and the correction of remediable defects." Here is something decidedly new. It is expected that the time is not far distant when the Rochester schools will refuse to graduate children who have not had remediable defects corrected. While it is the most prevalent of physical defects, malnutrition is one of the easiest defects to remedy. Rochester has found that, through the nutrition class method, it is possible to bring a child up to correct weight in from twelve to twenty weeks and when the child has attained normal weight, experience shows he does not relapse except for possible short periods during some unusual strain.

By linking up the school, the home, the physician and the child's own interest, the nutrition class has a parallelogram which is complete and which is sure of results. It is only fair to say that the Rochester workers were trained by Dr. William R. P. Emerson, of Boston, in the institutes held under the auspices of the local Tuberculosis Association last year and this, the second successful course of this kind having been given October 3 to 15, 1921. Registration was not limited to Rochester persons. Mrs. Ethel McC. Hendriksen is executive secretary of the Tuberculosis Association of Rochester and Monroe County.

Ohio

A perusal of the vital statistics shows that Cincinnati's death-rate for 1921, per 1,000 of population, will be approximately 14.1, the lowest in the history of the Queen City, as compared to 15.1 for 1920. The average rate for the decade prior to 1918 is 16.7. Every point of reduction in the crude death-rate means a saving of 400 lives.

In nearly all of the principal causes of death, we see a sharp shrinkage in fatal results.

The cumulative effect of public-health work and social service is reflected in the relatively small number of deaths from tuberculosis. The total will be a little under 600, as compared to 619 for 1920 and the annual toll of 950 a few years ago.

Influenza does not merit mention, only 43 deaths having been recorded. Heart disease, cancer, and cerebral hemorrhage played important roles, claiming as their toll 892, 485, and 442 respectively. There were only 14 deaths from typhoid, and 10 of these were among imported cases.

The small number of deaths, 33 per 100,000 of the population, caused by gastroenteritis in children under 2 years, is a tribute to infant care, public-health nursing, and the purity of the milk supply. In 1910 the rate was 103.8; last year it was 29.

The number of births recorded is the largest since the war. Cincinnati is also doing her part to conserve the infant population and we shall probably have an infant death-rate, per 1,000 births recorded, as low as 75.

In appraising public-health activities for 1921, mention should be made of the campaign against malnutrition, which has been made the basis of school medical examination; the public-health nurses, who function in all of the bureaus of the medical division, under the plan of generalized nursing, and the splendid public service of the laboratory.

The appropriation for health work was approximately $162,000, or at the rate of 40 cents per capita.

Oklahoma

A bureau of maternity and infant hygiene is being organized in the State Health Department in connection with the Sheppard-Towner bill. Miss Leila Hoagland, director of public-health instruction, will have charge of the bureau.

The state tuberculosis sanatorium at Talihina for whites, and the one for colored patients at Boley, Oklahoma, opened December 1. The third sanatorium, located at Clinton, will be completed and opened for patients about April 1.

South Carolina

The Department of Rural Sanitation and County Health Work of the South Carolina State Board of Health was severely crippled this year by having its appropriation reduced two-thirds. With the sum of $10,000 it was impossible to give financial assistance to seven counties and run the administration office. A conference was held with the county health officers as to the advisability of discontinuing the departments or running them on a very reduced scale. The International Health Board was consulted and their promised appropriation was secured with the understanding that they would materially cut their appropriation for 1922.

Each county health officer is working full time in his county, but is given a number of counties without health departments which he is to assist during the year in some way, if called on.

The deparment is offering a limited sum of money and the personal supervision and direction of the state director to any county which will organize a county health department. It proposes to help finance these counties for a few years, until the work establishes itself, and then expects the county to make full appropriation. In this way a county health department will be established in every county, with trained, experienced personnel under state supervision.

Last year there was a marked decrease in total deaths, and deaths from preventable diseases, in every county where the Department of Rural Sanitation and County Health Work has worked.

There was no money with which to run the moving picture unit this year, but believing this work too valuable to allow the equipment to remain idle, this department was financed by advertisements and personal contributions. During the summer months eleven counties were visited and 87 meetings were held at which moving pictures on health education were shown to a total attendance of 18,250 people. In Oconee alone, as a result of the film on Tuberculosis in Cattle, 500 cows have been tuberculin tested. In this work there was coöperation with the farm and home demonstration agents. When the county had no agent, the county superintendent of education or the members of the county medical associations made talks for us.

Our county health officers and nurses have given 511 lectures to 40,537 people, and have made 255 talks to school children. A tuberculosis clinic was held in each county for both colored and white, and numerous other free clinics were held in the various counties during the year.

Virginia

Wytheville is receiving high praise from the State Board of Health for the manner in which the community has been working together to control an outbreak of diphtheria. Aubrey H. Straus, bacteriologist of the State Board of Health, says that he has never been in any community where the doctors and people have worked more harmoniously to correct conditions. Recently there have been about fifty cases of diphtheria in Wytheville; but, thanks to excellent medical attention, there were no deaths. Deaths from diphtheria nowadays may properly be charged to neglect or carelessness, either neglect to have antitoxin available or carelessness about administering it in time. The Wytheville doctors were neither neglectful nor careless.

Wisconsin

Sheboygan has changed the status of Dr. H. C. Reich from part time to full time health officer, in accordance with a state law re-

quiring all cities of 25,000 or more to employ full-time officials. Madison has provided for a full time official and will soon appoint. All cities of this class have now complied.

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The Wisconsin State Board of Health is arranging an itinerary for its child welfare "special," a motor truck now building, which will bring modern health instruction for mothers and children to sections whose remoteness is a bar to healthful living. The board has appointed Dr. Blanche Horton, of Indiana, formerly in traveling dispensary work for the Mississippi State Board of Health, as pediatrician in charge of the truck on tour. A nurse and a chauffeur will complete the staff.

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In accepting the Sheppard-Towner act for Wisconsin, the State Board of Health submitted plans for maternity conferences, child health conferences in connection with the health truck, instruction of "mothers' helpers" for work in homes where the mother is in confinement and needs household assistance, "little mothers" classes for young girls, public lectures by physicians and nurses, and special training for graduate nurses and dietitians in infant feeding before taking up field work.

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The State Board of Health is disseminating information throughout the state for the wider education of physicians and laymen in the use of the Schick test and of immunizing methods for diphtheria.

Nova Scotia

One more unit has been added to the hospital area growing up in the vicinity of the Medical School of Dalhousie University in Halifax. The new tuberculosis hospital recently opened shows Halifax taking one more very important step along the lines of public health and preventive medicine. This splendidly appointed tuberculosis hospital will house from fifty to sixty-five persons in advanced stages of tuberculosis. The far-reaching effect of proper housing of persons in the terminal stages of this disease at the stage when they are the greatest menace in the home has an almost incalculable advantage to the public. What is equally important to the public and what must be consoling to the relatives and friends of the tuberculosis sick who need hospital care, is to be advised of the recent reciprocal action of the charities committee of the City Council, and the medical faculty of Dalhousie University.

It will be recalled that some weeks ago the university offered to nominate an expert consulting and attending staff for the new tuberculosis hospital, who will give their services free to the city, and asked at the same time that students in the medical course be given opportunity to study tuberculosis at this hospital. The city officials readily saw that not only would this opportunity for study be of great advantage to the future doctors of Halifax and vicinity, and would insure the highest type of service free, but would also be of great assistance to future doctors of medicine throughout the maritime provinces. They of course acquiesed in the request.

Announcement has just been made by Alderman H. S. Colwell of appointment of the medical director, consulting and attending staff selected under this reciprocal program. They are as follows: Medical director, Dr. W. Bruce Almon; consulting surgeons, Drs. E. V. Hogan and H. K. MacDonald; consulting internist, Dr. Kenneth A. MacKenzie; consulting laryngologist, Dr. R. Evatt Mathers; consulting pathologist, Dr. A. G. Nicholls; consulting obstetrician, Dr. W. Bruce Almon; consulting urologist, Dr. Frank Mack; consulting pediatrist, Dr. M. J. Carney. Attending staff of tuberculosis specialists, Dr. T. M. Sieniewicz, assisted by Drs. M. J. Carney and H. G. Grant. Attending dentist, Dr. G. N. Stultz; pathologist, Dr. D. J. MacKenzie, and resident interne, senior student, Mr. Corey S. Bezanson.

With a staff of such specialists in charge of the tuberculous sick, the public may be assured that nothing will be left undone that might offer a cure or relief for those admitted for treatment. Those who deliberately enter the hospital in order to protect their loved ones at home may be assured of the best of care and of every comfort that a modern hospital can provide, easy of access to friends and relatives.

When the University Health Center, to be erected out of Rockefeller funds, is completed and staffed, the city of Halifax will have the most complete tuberculosis and best coördinated program of any Canadian city, and the medical school will have the facilities for teaching medicine second to no school on the American continent.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst and E. B. Starr.

Relation of Lead Poisoning in Utah to Mining.—While serving as surgeon with rescue car No. 11 of the U. S. Bureau of Mines, the writer visited the principal metal-mining camps of Utah during the latter part of 1919. In visiting the mines, meeting and conversing with miners, and talking over the medical situation with physicians in various camps, the number of cases of lead poisoning encountered was great enough to attract attention.

An analysis of the returns furnishes some interesting findings. The total cases reported, 371 for 1919 and 224 for 1920, give lead poisoning case rates for the entire population of the state of 0.83 and 0.50 per 1,000 respectively. These rates are strikingly high for a state the principal industries of which are agriculture and stock raising.

It is estimated that at least 75 per cent of the cases reported for the medical centers are chronic or aggravated cases of lead poisoning sent from the mines and smelters to medical centers for treatment in hospitals or by specialists. One specialist reported that during 1919 he averaged one or two cases each month from the mines.

The principal controlling factors in lead poisoning in mining, namely, the nature of the lead ores mined, the dryness of the mine, dust in the atmosphere, and the ventilation, naturally have a great influence on the number of cases of lead poisoning produced. The carbonate and oxide ores are much more prone to cause lead poisoning than sulphide ores. Hence, although a mine may produce considerable lead, if the relative proportions of carbonates and oxides to sulphides are low, the resulting cases of lead poisoning will be fewer.

The case rate from lead poisoning in Utah is so far out of proportion to the death-rate, that the death-rate cannot be taken as an index to the number of cases prevalent. From the reports received during this investigation, the metal-mining industry as represented by the metal mines and smelters is responsible for at least 95 per cent of the industrial lead poisoning in Utah. This was to be expected, as mining and smelting are among the principal industries of the state, with relatively few other industries in which workers might be exposed to salts of lead.—Arthur L. Murray (Surgeon) *Reports of Investigations,* U. S. Bureau of Mines, Serial No. 2274, August, 1921.

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Precautions to Be Observed in Entering Abandoned Exploratory Shafts and Pits.—Much valuable information on the subject of mine atmospheres, mine gases, and the effect of oxygen deficiency on the human system is contained in *Miners' Circular 14,* "Gases Found in Coal Mines" by G. A. Burrell and F. M. Seibert; *Technical Paper 122,* "Effects of Oxygen Deficiency on Small Animals and Men," by G. A. Burrell and G. G. Oberfell; and "Chart of Properties of Mine Gases" by G. A. Burrell. These publications of the Bureau of Mines should be read by all who are interesting in the subject of this paper.

All the gases found in pure air are without color, smell, or taste, but no reliance can be placed on these senses for detecting impure air. Air so impure that it will not support life may not have any disagreeable odor or choking effect that would warn the breather to escape.

Oxygen deficiency in the air of old shafts and pits or other workings may be caused through replacement by carbon dioxide or methane and absorption of oxygen by the rock and timber.

In old metal exploratory shafts, carbon dioxide is more commonly present than methane. Carbon dioxide gas is generated by circulating waters. This gas being heavier than air, tends to settle in the still atmosphere of the shaft rather than mix with the air. Thus, at one point in the shaft the air may support life, but a very short distance below it may consist of irrespirable "black damp." In opening coal measures, or other carbonaceous sedimentary formations, some oxygen is absorbed and some carbon dioxide is given off by the coal. Old abandoned workings often contain large quantities of black damp, because the atmos-

phere is motionless and the oxygen has been removed by long contact with the coal. In addition to carbon dioxide, methane (fire damp) is also given off by the formations. Methane is about one-half as heavy as air, but when mixed with air does not readily separate from it. It forms explosive mixtures with air in proportions between 5½ and 13 per cent methane.

"Methane has no physiological effect when breathed, but by diluting the air until the proportion of oxygen is too low, may render it unfit to breathe. Carbon dioxide does not usually cause distress until 3 or 4 per cent is present, but a large percentage (10 per cent) causes panting and stupefaction." (Gas chart, G. A. Burrell.) When the oxygen of the air in a mine opening is so low that a miner's oil lamp, candle, burning paper, or torch is extinguished, a man should not go or stay in such an atmosphere. A candle or an ordinary miners' safety lamp will be extinguished in an atmosphere containing less than 17 per cent oxygen, and an acetylene or carbide lamp in air containing 12 or 13 per cent oxygen. For this reason, a carbide lamp is not recommended in testing for low oxygen.

While a man might live or even work in air containing 17 per cent oxygen, it would be a most hazardous undertaking to enter or remain in mine air that extinguishes a flame, since this shows only that there is less than 17 per cent but not how much less. Before any abandoned shaft or pit is entered one should lower either a lighted candle or lantern or safety lamp to ascertain the condition of the air. If the flame is extinguished, and there is not sufficient oxygen in the shaft air to support life, one should not attempt to enter the shaft until the air is stirred up by some common means.

Raising and lowering a bucket several times, to bring in fresh air from the surface, is common practice. After working it up and down vigorously for a few moments the air at the bottom of the shaft should again be tested with a flame. If there is no bucket available, the air should be churned by means of a blanket, tent fly, inverted umbrella, or other large light object, attached to a rope. Methane may be expected in abandoned shafts or pits driven in coal measures or carbonaceous slates, or where a heavily timbered shaft is partly filled with water. If methane is suspected, it is best to lower nothing but a miner's safety lamp. If the light is not extinguished the descent can be considered reasonably safe. When no safety lamp is available, and it is necessary to test with an open light, care should be taken to immediately withdraw all persons in close proximity to the shaft or pit as there may be an explosion. It would be safer to clear the shaft before making any test with an open flame. It is common practice among metal-mine prospectors to throw burning grass or lighted paper into an abandoned pit or shaft, but there is a possibility of fire starting if there is any timber or combustible material in the shaft bottom.

Generally, there is no physiological warning of oxygen deficiency in the air. The first decided feeling is one of extreme weakness accompanied by dizziness, better described as partial paralysis, and the victim collapses practically without warning. To guard against this danger, a man should not enter old workings without having a rope tied around his body and at least two men on the top. The rope should be kept taut. Then, if a distress signal is given, the explorer will not only be prevented from falling, but can be quickly pulled to fresh air and his life saved. It is preferable, of course, to use a windlass or other hoisting equipment in exploring such shafts or pits, but such facilities are not always immediately available.— Byron O. Pickard (Mining engineer), *Reports of Investigations,* U. S. Bureau of Mines, Serial No. 2295, November, 1921.

✠

Illumination as a Factor Favoring Production.—The author discusses the obvious advisability of attention to the health of the worker and especially of labor turnover in relation to poorly lighted quarters, spoilage of work, and production. "If a workman saves three minutes time per day, due to correct lighting, the entire operating cost of the system is paid for." The great value of using the simple little instrument, the foot-candle meter, for determining whether illumination is sufficient on the working plane, is also stressed. (This instrument is made by the National Lamp Works of the General Electric Company, Cleveland, Ohio, and costs about $25.00, E. R. H.).— R. E. Harrington, *Nation's Health,* October, 1921, p. 547.

Births by Occupation of Father.—The Department of Commerce announces that the Bureau of the Census has recently completed a tabulation of the total number of children ever born to those mothers who bore a child in the year 1920, and who gave the occupation of the father. The returns received included 1,461,604 children born in 1920, or all but 3.1 per cent of the total number of children born in that year within the registration area of the United States. The average number of children which each mother had borne, including the child born in 1920, was 3.3, and of these children, the average number living was 2.9.

The returns were tabulated with reference to the occupation of the father. The average number of children ever born ranges from 4.6 for mining foremen, overseers and inspectors to 1.8 for soldiers, sailors and marines. Both of these extreme averages are easily explained, for soldiers, sailors and marines are usually young and therefore have not been married long, while foremen, overseers and inspectors are usually in middle life. For many occupations, however, the ages of the fathers are presumably about the same, and differences shown indicate real differences in the size of families. For example, the low figures for dentists (2), architects (2.1), and school teachers (2.3) are in striking contrast with the figures for mine operatives (4.3), quarry operatives (4.1), bootblacks (3.9), and brick and stone masons (3.9).

In the farmers' families the average number of children born was 3.8; in clergymen's it was 3.3, in lawyers' 2.4, and in physicians' 2.3. The averages for occupational classes are shown in the table published by the Bureau.—Dept. of Commerce, Bureau of the Census, Washington, D. C.

✣

Occupational Skin-Dust Disease Among Zinc Oxide Workers.—The workers in the zinc oxide plant call the skin disease which they have, "oxide pox." Fourteen of seventeen men examined gave a history of it. Those most exposed to the dust were most susceptible. The author considers that the disease is primarily due to a clogging of the skin glands with the oxide dust, and secondarily to infection. Free perspiration greatly favors the disease, but when the pustular stage occurs, the contents of the papules are very difficult to squeeze out and are composed chiefly of zinc oxide. When freshly made, the oxide is very dry but it is hydroscopic and quickly takes up moisture, so that after storage the moisture content was found to be increased 122 per cent. Minute traces of various contaminates are to be found in the oxide including lead oxide, copper oxide, arsenic and antimony oxide, all found in a specimen which was otherwise 99.199 per cent pure zinc oxide. The author concludes that zinc oxide is nontoxic and that the adulterants are insignificant, but that it is capable of acting as a mechanical conveyor of bacteria. Rubbing together of two body surfaces, especially when moistened with perspiration, greatly favors it, as well as warm weather. The workmen were of the opinion that personal cleanliness was the chief factor in its prevention but special workclothes, frequently cleaned, elimination of dust as far as possible, and plenty of bathing facilities are recommended.—John A. Turner, *U. S. Public Health Reports,* Vol. 36, No. 44, Nov. 4, 1921, p. 2727.

✣

Auto Gases May Cause Poisoning—Recent investigations made by the United States Bureau of Mines and the Public Health Service have shown that the exhaust gases from automobiles frequently contain sufficient carbon monoxide to cause symptoms of carbon monoxide poisoning. These experiments were conducted as a consequence of several deaths having been reported from garages, the victims apparently having died from carbon monoxide poisoning. The experiments show that this was probably the real cause of death.

Boards of public health in various states have issued warnings to automobilists and especially to those who operate garages. If the following five precautions are taken there will be no danger; if they are neglected a death may ensue.

1. Always open the garage door before starting the engine.
2. Do not allow the engine to run for any length of time in a closed garage.
3. Do not work near the exhaust of a running automobile engine.
4. Special precautions as to ventilation are necessary when in garage pits.
5. When the exhaust is used for heating

a closed car, the system must be free from leaks.

To these instructions may be added this bit of advice. When a person is overcome by gases from automobile engines or any other gasoline engines he should be removed at once to the fresh air and the methods used in resuscitating for drowning should be employed until a physician can be secured. These methods consist in the main of pumping with the arms and alternately pressing and releasing the lower portion of the chest until natural breathing is restored.

✠

Miners' Safety and Health Almanac.—The Miners' Safety and Health Almanac for 1922 has been issued by the United States Bureau of Mines, in coöperation with the United States Public Health Service. The almanac, which has been compiled by R. C. Williams, Passed Assistant Surgeon, U. S. Public Health Service, besides containing the usual fund of information concerning sun, moon, wind and weather, preaches crispily and snappily the doctrine of Safety First. The almanac is freely illustrated and contains many articles by experts in safety, health and sanitation problems. It is intended for circulation among the million coal and metal miners and quarry workers in the United States. Copies may be obtained from the Bureau of Mines, Washington, D. C.

✠

Treatment for Carbon Monoxide Poisoning.—The first and most important thing in caring for a case of acute carbon monoxide poisoning is to get the poison out of the blood. Every moment that shuts the oxygen out of the hemoglobin adds to the chances for failure of respiration and failure of the heart. Every minute that the tissues are supplied with only a part of the oxygen they need increases the danger of their degeneration and permanent damage. Both to save life itself and to prevent ill health in the future, it is of vital importance to eliminate carbon monoxide from the blood as rapidly as possible.

The first step is to get the victim away from the atmosphere of carbon monoxide which he is breathing; the next is to supply him with oxygen. This may be done by getting the patient into fresh air, but only one-fifth of air is oxygen. If a tank of pure oxygen is available, it is far better to use it, as the action is much faster and the after-effects, especially the headache, are much less severe and not so prolonged.

In view of the great importance of administering oxygen to these victims at the earliest possible moment, it is recommended that all ambulances be equipped with oxygen tanks. It may be that when the victim is found, his breathing has stopped, or is very weak and irregular. In this case, after quickly removing the victim to good air, or while administering oxygen, one of the rescuers should begin at once artificial respiration, by the Schaefer method.

Continue artificial respiration, if necessary, for at least three hours without interruption, or until natural breathing has been restored or a physician has arrived. Even after natural breathing begins, carefully watch that it continues If it stops, start artificial respiration again.

While the administration of oxygen is by far the most important factor in the treatment and cannot be overemphasized, other things should be done to help the patient. He should be kept quiet and lying flat, to help his weakened heart. When he revives, he should not be allowed to walk about or in any way exert himself, for there is danger of heart failure. Heat from safety lamps, hot-water bottles, or warm bricks, rubbing the arms and legs, and keeping the patient well covered with blankets all help the circulation, and aid in tiding the body over a period of low vitality. The safety lamps, hot bricks, etc., should be well wrapped in cloth or paper as a precaution against burning the patient. Other stimulants, such as hypodermics of caffein-sodium benzoate or camphor in oil, should not be administered except by a doctor, after he has considered the possibility of overstimulation and consequent collapse. The patient should be kept in bed for a day at least. Later he should be treated as a convalescent, being given plenty of time to rest and recuperate. Just how long this time should be depends on the severity of his poisoning and should be decided by his physician.

Complete details of methods employed in the treatment of carbon monoxide poisoning, including a description of the Schaefer method of artificial respiration, are given in a report which may be obtained by applying to the Bureau of Mines, Washington, D. C.

Symptoms of Poisoning by Nitrogen Fumes.—The authors quote Irvine as stating that after an exposure to nitrogen fumes from explosives no symptoms may be evident for a time; yet within twelve to eighteen hours the person may die from acute hemorrhagic edema of the lungs. There may, however (Oliver), be a sensation of painful burning during inspiration of the fumes which ceases when fits of coughing have rejected the poison from the system. The maximum percentage of oxides of nitrogen that may be present in mine air without harm to the workmen breathing it have not been closely established. Carbon monoxide may be one of the forms of poisoning, and Irvine claims that carbon monoxide accounts for most of the deaths in accidents due to the fumes of explosives. Haldane found that mice exposed to 0.05 per cent nitric oxide gas for thirty minutes were dead in twenty-four hours. The symptoms were the same also from the fumes of burning dynamite. Air containing enough nitrogen fumes to cause irritation in the nose or air passages is very dangerous. Irvine states that inhalation of these fumes is a contributing factor in the development of "miners' phthisis."—Allison, Parker and Jones, *Technical Paper No. 249,* U. S. Bureau of Mines, 1921, p. 10.

✠

The Physiology of Fatigue.—"1. Certain phases of muscular fatigue have been investigated with special attention to the gaseous and osmotic relationships in the blood of dogs.

"2. Hemolysis in vivo occurs in untrained dogs after severe exercise.

"3. The resistance of the red blood corpuscles to laking by hypnotic salt solutions is increased by exercise.

"4. The carbon dioxide content of the blood is decreased in both arterial and venous blood by exercise.

"5. The degree to which the hemoglobin is saturated with oxygen is increased in arterial and diminished in venous blood by exercise.

"6. These changes in gases result in a migration of acids, of which Cl is an example, into the plasma. A diminished osmotic pressure within the corpuscles results and is indicated by an increase in resistance to laking by hypnotic salt solutions.

"7. Certain of these changes are modified by long continued exercise. This failure in the efficiency of the processes of the organism is regarded as fatigue.

"8. The significance to the cardio-vascular and respiratory systems of the changes in the blood gases and the osmotic relationships is briefly considered."—*U. S. Public Health Bulletin No. 117,* May, 1921, Albert B. Hastings, p. 40.

✠

Census of Safety and Health Workers.—All industrial physicians and surgeons, industrial nurses, and other persons engaged in industrial health work are to be included in the census of safety and health workers now being taken by the National Safety Council in all parts of the country. Although health work in industry, along with safety, has made great strides in the past few years, it is not at present known how many persons are engaged in either of these activities, who they are, or where they are located. This is the first time an attempt has ever been made to list all the industrial safety and health workers. Public safety workers will also be included in the census.

It is believed that the results of the census will give a good indication of how extensive the safety and health activities now being carried on are. The census will include not only members and employes of members of the National Safety Council, but all persons engaged in industrial safety and health work whether connected with the council in any way or not. The council has almost as deep an interest in industrial health work as in accident prevention, and is very closely allied with the American Association of Industrial Physicians and Surgeons. Many health workers and companies employing health workers are numbered among the council's membership.

Every reader of this publication who is professionally engaged in industrial or public accident prevention or industrial health work—whether he is devoting all or only part of his time to accident prevention—is urged to assist in the taking of this census by sending to the National Safety Council, 168 North Michigan Avenue, Chicago, his name and the other data requested in the council's census form which follows.

Name .....
Company or organization.....
.....
City..... State.....
Nature of company's business.....
.....
Is safety your principal work?.....
Please check other activities you engage in:

Fire protection	Engineering (other than safety)
Health and sanitation	
Workmen's compensation and claims	Legal
	Insurance
General executive (such as manager or superintendent)	Welfare
	Educational
	Industrial relations

How long have you been in your present position? .....
Technical or other special education?.....
.....
Signed .....
Title .....

✣

Accidents in Metal Mines.—Accidents in 1920 at mines producing gold, silver, and miscellaneous metals caused the death of 117 men and the injury of 5,704, according to reports received by the United States Bureau of Mines from operating companies throughout the country. Reports from 2,358 mine operators show that 29,933 employees worked 8,354,830 shifts, an average of 279 working days per man. This group of mines includes all metal mines except those producing copper and iron and those in the Mississippi Valley States producing lead and zinc.

The figures show a reduction as compared with the previous year, of 72 operating companies, 2,197 employees, 222,265 shifts, and 9 fatalities. There was a gain of 12 working days per man, and an increase of 235 in the number of men injured (an injury signifying disability for more than one day). The accident rates for 1920, based upon a standard of 300 working days to the year, were 4.20 killed and 204.82 injured per 1,000 employees, as against 4.41 killed and 191.29 injured in 1919.

States having the highest fatality rates for each thousand employees were New York (22.73), Washington (12.30), Utah (6.29), California (5.83), Colorado (5.35) and Arizona (5.34). Those having the lowest fatality rates were New Mexico (1.34), South Dakota (2.86), Idaho (3.02), Alaska (3.31), Nevada (3.58), and Montana (3.77).

The highest non-fatal injury rates were 316.8 for Utah, 298.0 Idaho, 275.4 California, 266.7 South Dakota, 242.4 New York, 196.6 Montana, 157.7 Colorado, 134.4 Arizona, and 124.0 Nevada. States apparently having the lowest injury rates are not shown, because the abnormally low rates are believed to be due to the absence of state laws compelling mine operators to furnish complete reports to state officials.

Of the 117 fatal accidents, 81 occurred in underground mine work, 19 in shafts, 2 at open-pit workings, and 15 at surface shops and yards. The non-fatal injuries were segregated as follows: 4,602 underground, 192 in shafts, 75 at open pit mines, and 835 at surface shops and yards.

The principal causes of non-fatal accidents underground were: 990 fall of rock from roof or wall, 575 loading at working face, 524 timber or hand tools, 522 haulage, 474 drilling, 220 falling down chute, winze, etc., 151 stepping on nails, 115 run of ore from chute or pocket, and 99 explosives. Of the shaft accidents, 59 were caused by cages and skips, 57 by objects falling down shafts, and 18 by persons falling down shafts. Accidents at open pits were due to the following causes: 13 falls or slides of rock, 11 hand tools, 9 haulage, 6 falls of persons, and 5 by steam shovels. At surface yards and shops the principal causes of accidents were: 131 hand tools, 99 machinery, 98 mine cars, 95 falls of persons, 52 stepping on nails, and 17 railway cars.

Many lives and much property are lost every year because of accidents due to venereal diseases, says the U. S. Public Health Service. So great, in fact, are these losses that the National Safety Council has issued a bulletin on them. For instance, four serious recent railway wrecks were traced to employees who failed because they were suffering from paresis, which is a form of syphilis.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Permanganate Test of the Cerebrospinal Fluid.—The author detects any increase in the albumin content of this fluid by the oxidation of potassium permanganate when there are protein substances present. When this occurs, the tint veers to canary yellow. Among those who have extolled the simplicity and dependability of this test are Rebizzi, who found it useful in differentiating true from false tumors in the brain, and Bardisian, who was able to exclude meningitis by the negative findings in four cases, corroborated by the course. To 1 c.c. of the cerebrospinal fluid is slowly added, pouring it along the wall of the test tube, 1 c.c. of a 1:10,000 solution of potassium permanganate. The tube is then held vertical, and there is no change in tint if the fluid is normal. If not, the zone of contact turns yellow. By jarring the tube a little the entire fluid turns yellow. The reaction is pronounced when the tint changes in less than two minutes; moderate, in three or four, and weak, if the tint does not veer to yellow after five to seven minutes. In several hundred applications of this test, he has found it a constant index of abnormal protein content, sometimes preceding lymphocytosis, although in children the latter usually appears first.—P. Boveri, *Policlinico*, 28, 450 (1921); *Jour. A. M. A.*, 77, 1848 (1921).

✣

Potassium Iodid Test of Kidney Function.—The author gave 0.5 gm. potassium iodid by the mouth to 124 healthy persons after drinking 400 or 500 c.c. of water, and he determined the interval before it appeared in the urine. He drew the urine through a catheter every two or three minutes. In 100 healthy men between 18 and 48, 0.1 gm. was injected intravenously. The iodin reaction was generally positive in the urine in three or four minutes, never later than eight, and the whole amount was eliminated between the fourteenth and twenty-second hours. In 24 cases the test was made quantitative. The findings related form a basis for application of this test in pathologic conditions.—A. Narath, *Mitteil. Grenzgeb. Med. u. Chir.*, 34, 90 (1921); *Jour. A. M. A.*, 77, 1854 (1921).

The Hemoclasic Crisis as Test of Liver Functioning.—The author applied Widal's test ingestion of 200 gm. of milk to eighty-two persons, and thus confirmed the specific connection between the positive reaction and the liver. When leukopenia or leukocytosis is observed twenty minutes after sipping the milk, this tells the story, the leukopenia or hemoclasic crisis, as he calls it, testifying to the inability of the liver to retain and modify the proteins brought to it by the portal vein. The leukocytes may drop by 20 to 60 per cent, but this leukopenia does not parallel the severity of the liver changes. For diabetes, the test is made with 20 gm. glucose.—E. Somjen, *Med. Klin.* (Berlin), 17, 1203 (1921); *Jour. A. M. A.*, 77, 2008 (1921).

✣

Hemolysins in Spinal Fluid in Meningitis.—The author has found the presence of hemolysins in the lumbar puncture fluid a reliable index not only of the presence of purulent and cerebrospinal meningitis but of the trend toward recovery or aggravation. Before the clinical manifestations showed any improvement, the reduction in the proportion of hemolysins enabled a more favorable prognosis, and this was confirmed by the course. On the other hand, the negative findings with serous meningitis and with convulsions from spasmophilia were always dependable, as also in hydrocephalus, chorea, epilepsy and spastic diplegia. He urges greater use of this Weil-Kafka method by pediastrists; all that is necessary is to add 0.5 c.c. of the sheep blood solution to 5 c.c. of the cerebrospinal fluid. The hemolysins normally in human blood do not get into the spinal fluid in normal conditions. —*F. Schleissner, Med. Klin.* (Berlin), 17, 1206 (1921); *Jour. A. M. A.*, 77, 2008 (1921).

✣

Spirochetal Pulmonary Gangrene.—In three cases, the presence in large numbers of fusiform bacilli and spirochetes in early gangrenous ulceration of the lung suggest their etiologic relationship thereto. These spirochetes morphologically resemble Spirochaeta

(or Treponema) buccalis, vincenti, microdentium, mucosum and macrodentium. In all three cases, marked dental caries and pyorrhea alveolaris were present. Smears from these lesions showed organisms morphologically indistinguishable from those mentioned above. The organisms, which are poorly colored by the usual laboratory stains, are readily demonstrated by the Fontana method in smears and by the Levaditi method in tissues. From a study of the pulmonary lesions in these three cases, the impression is gained that they are extensive pneumonias, caused by organisms from the unclean mouth, in which gangrenous ulceration occurs because of activity of the aspirated fusiform bacilli and spirochetes.—B. S. Kline, *Jour. A. M. A.*, 77, 1874 (1921).

✠

Preparing Colloidal Gold.—The author has simplified the technic for the colloidal gold used in the Lange test, and states that he was constantly successful with this new method in obtaining a good suspension. He adds to 100 c.c. of distilled water 1 c.c. of a 1 per cent solution of gold chlorid and 1 c.c. of 2 per cent solution of potassium carbonate. This is heated over a flame and, as it begins to boil, he adds 1 c. c. of a 0.5 per cent solution of glucose and continued the boiling. The fluid in about a minute turns violet and in a few seconds the tint becomes a brilliant purple, and it is then removed from the flame.—N. Pietravalle, *Annali d'Igiene*, 31, 309 (1921); *Jour. A. M. A.*, 77, 1927 (1921).

✠

A New Test for Tuberculosis.—The author describes a new test for tuberculosis which he has tried in about eighty cases of tuberculosis and in fifty normal control subjects. About 20 to 60 drops of blood are drawn from the thumb by a Francke syringe, and after twenty-four hours the serum separated. The serum is heated in a bath at 60° C. for three-quarters of an hour and intradermal reaction practised with two drops. If the reaction is positive, a red infiltrated papule from 10 to 15 mm. in diameter forms at the site of injection in twenty-four to forty-eight hours. If it is negative, no change is noted, or at most a temporary redness. The results were very satisfactory and always negative in the control cases even when syphilis was present.—R. Leone, *Rif. Med.*, Aug. 20, 1921; *Brit. Med. Jour.*, Nov. 5, 1921.

Diagnostic Value of Sugar Content of Cerebrospinal Fluid.—A study of the literature on this subject brings out two points: First, a "high" sugar content should not be regarded as a positive diagnostic sign of lethargic encephalitis; second, a low sugar content (provided the fluid is fresh) is very strong indication of an acute or tuberculous meningitis. Coope's findings in ninety-five cases confirm these conclusions. It has not been possible simultaneously to examine the sugar content of the blood. The method was that described by Folin and Wu for blood sugar.—R. Coope, *Quart. Jour. Med.* (Oxford) 15, 1 (1921); *Jour. A. M. A.*, 77, 1769 (1921).

✠

Trench Fever.—The organism of trench fever is present in the "whole blood." The evidence seems to be in favor of the organism being an extracorpuscular rather than an intracorpuscular parasite. The smallest quantity of whole blood which has given rise to the disease was 0.5 c. c. The blood is infective from the first day of the disease, and in one case was found to be still infective after 443 days. The microscopical examination of the blood has not up to the present revealed the organism, or at least has not differentiated it from other granules present in blood. There is some evidence that the organism may leave the body in the sputum and urine, but the chief and only way which has any practical significance is by means of a blood-sucking insect, the louse. There is no evidence that infection takes place through food, drink or air, but only by inoculation of the organism by means of this insect. The chief method of infection is not, as might be expected, by the bite of the louse, but by the infected excreta of the louse being brought in contact with an abraded surface of the skin. After a louse has fed on a case of trench fever, five to nine days elapse before the excreta become infective. If lice are fed on a case for some time, a high percentage of the lice become infective. There is no transmission of the organism of trench fever from infected lice through the egg to their offspring. The tenth of a milligram of excreta has been found sufficient to set up the disease. The organism of trench fever retains its virulence in louse excreta for at least four months. The virulence of lice excreta is lost by exposure to dry heat of 100° C. for 20 minutes; to moist heat of 60° C. for a similar time. It is doubt-

ful if any of the laboratory animals are susceptible to trench fever.—D. Bruce, *Jour. Hyg.* (British) 20, 258 (1921).

✠

A Study of the Gonococcus and Gonococcal Infections.—Gonococcus stock cultures were found to grow satisfactorily for all routine work on testicular agar. Chocolate blood testicular agar was found to be a useful medium for increasing the vitality of a weakly growing culture. Environmental requirements of the organism included moisture of the atmosphere but not a reduced oxygen tension. Isolation of cultures from acute cases of anterior urethritis in men was most successfully accomplished on chocolate blood testicular agar. No pure cultures of gonococci were isolated from chronic cases of gonorrheal endocervicitis, although single colonies of organism morphologically typical gonococci were obtained on plates of hydrocele testicular agar containing certain members of the triphenylmethane series of dyes as an inhibitor of contaminating organisms. The alexin fixation test serves as an aid in diagnosis, but it should be still considered rather as confirmatory evidence than as an independent basis of diagnosis. It is of little value in early cases, as might be expected. A non-specific reaction was obtained by the intracutaneous injection of a preparation of gonococci. A like reaction was obtained in gonorrheal patients on the injection of a preparation of meningococci. No typing of strains of gonococcus was obtained by means of the alexin fixation and agglutination reactions or by means of the method of absorption of agglutinins.—M. W. Cook and D. D. Stafford, *Jour. Inf. Dis.*, 29, 576 (1921).

✠

Studies on Complement Fixation.—The velocity of fixation of complement employing syphilitic serums and 6 different Wassermann antigens was studied. The periods of fixation were 0.5, 15 and 30 minutes and 1, 2, 3, 4, 5, 6 and frequently 7 hours. The temperatures of fixation were water bath, room and icebox, and, in some cases, water bath and icebox. It was observed that the velocity of fixation of complement is not markedly affected by temperatures ranging between water bath and icebox. The tendency for slightly stronger fixation at icebox temperature compared with that of the water bath was noted with all antigens, except the Noguchi. The latter antigen showed a tendency for somewhat stronger fixation at water bath temperature. It was also observed that a fixation period of 4 hours at icebox temperature approaches the maximum amount of fixation of complement with all antigens, including the Noguchi, although the latter in a few cases showed slightly more fixation after 1 hour in the water bath than after 4 hours in the icebox. Finally, it was shown that the velocity of fixation of complement is directly proportional to the concentration of antibodies in the syphilitic serums.

It was shown that thermal destruction of syphilitic complement-fixing substances is markedly influenced by the mode of fixation. When fixation was carried out for 1 hour at water bath temperature, the heating of serum for 30 minutes at 56° C. showed in a total of 87 serums tested an average antibody destruction of 32 per cent. When fixation was carried out for 4 hours at icebox temperature, some serums showed a slight loss, others, no loss and still others, a considerable gain in antibody content, with the result that the average finding of the 87 serums tested represented a gain of 10 per cent. Heating syphilitic serums for 20 minutes at 62° C. gave an average of 75 per cent antibody destruction, with water bath fixation, and 46 per cent with icebox fixation. The type of antigen employed was also found to influence thermal destruction of these antibodies. Heating serums for 30 minutes at 56° C. showed either little antibody destruction or an apparent gain in antibody content with 2 alcoholic extract antigens and one cholesterinized antigen and icebox fixation, while even with this mode of fixation considerable destruction was noted at this temperature and period when employing the Noguchi antigen. Finally, it was shown that complement-fixing antibodies obtained on protein or bacterial injections were comparatively thermostable. These antibodies were found to be capable of withstanding a temperature of 65° C. Temperature of 70° C. and 75° C. showed varying degrees of antibody destruction—somewhat more so in the case of bacterial immune bodies than those obtained on protein injections. With regard to the effect of the mode of fixation on specific antibody destruction due to heating, no marked difference was observed between water bath and icebox temperatures.—R. L. Kahn, R. M. Olin, Jr., S. R. Johnson and A. G. Boyd, *Jour. Inf. Dis.*, 29, 630 (1921).

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THE CAMPAIGN AGAINST YELLOW FEVER IN MEXICO

FRANCISCO CASTILLO NÁJERA, M.D.
Superior Board of Health, Mexico

Read before the Laboratory Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 15, 1921.

YELLOW FEVER existed in Mexico even before the conquest. In some localities the disease has always been endemic, and from these centers epidemics have from time to time arisen. Mérida, for example, is thought to have been the endemic focus from which the last epidemic started. In 1903 the disease was widespread, extending to cities of the interior never before visited (Monterrey and Linares in the state of Nuevo León, Saltillo in Coahuila, Vallés and San Vicente in San Luis Potosí [see Table 1], and it was at that time that a formal campaign was instituted under Dr. Licéaga. The modern methods of sanitation and mosquito eradication were carried out with remarkable success. The disease was eradicated from the towns of the interior and has never reappeared there; even in Veracruz it was considered under control, and in other Gulf states (Tabasco, Campeche, Yucatán) only sporadic cases appeared. During the period from 1903 to 1912 our country was practically free from yellow fever, as shown by Table 2, in which are compared the incidence during the ten years before the campaign and that during the subsequent ten years.

That epidemics broke out again in 1920, notwithstanding the enforcement of sanitary measures, was perhaps due to the fact that in small towns the presence of a few cases of the disease in mild form had escaped notice. I also believe that yellow fever attacks children in the endemic regions; hence the immunity of the adults. This opinion is supported by the observations of Dr. Juan Graham Casasús, who has seen in Tabasco in non-epidemic periods many cases of disease in children which closely resembled yellow fever. Many cases of disease diagnosed in recent years as "hemorrhagic malaria" by physicians practicing in towns of both coasts may actually have been yellow fever. It is probable that yellow fever, like other epidemic diseases, attacks all susceptible persons in a given region. The immunity of the survivors and the enforcement of anti-mosquito measures minimize the opportunities for new cases to arise; the virulence of the germs decreases by less frequent passage, like that of other epidemic diseases, and such infections as occur are mild. The individuals with the mild disease, however, are germ sources, and if the mosquito index is not kept low the mild

cases continue to occur, gradually increasing in severity, until the organism regains its maximum virulence by frequent passage and sets up a new epidemic. No other explanation would account for the almost simultaneous appearance of yellow fever in widely separated localities without communication.

The first case appeared in Veracruz on June 8, 1920, and since that time cases have been reported in Tuxpam, Papantla, Gutiérrez Zamora, Alvarado, Tierra Blanca, all in the state of Veracruz, and also in other towns of the Gulf coast, and more recently on the Pacific coast. In Table 3 are recorded the statistics of incidence of yellow fever during 1920 and until the 10th of October of the present year. Since that date 4 cases have been recorded in Puerto Vallarta, in the state of Jalisco, a small, almost isolated port; none of the cases is known to have been imported.

1920 Campaign. Immediately upon the appearance of the first cases, active measures were instituted, including the isolation of infected individuals in special lazarettos, treatment with Noguchi's serum, and the vaccination of non-immune persons. The pools and swamps were petrolized and drained, and fish were used as larvacides in all water containers. All vessels were quarantined or subject to rigid sanitary inspection. We were able to control the disease in many localities, and by the end of the year 1920 yellow fever had almost disappeared, even in epidemic centers such as Tuxpam, where it had claimed numerous victims. Among the latter should be mentioned Dr. Teodoro López, of the Army Medical Corps, one of the first to enroll in the campaign. During the epidemic period Pérez Grovas conducted experimental work which confirmed the etiologic relationship of Noguchi's leptospira to yellow fever.

1921 Campaign. The Department of Health, confronted with the urgent necessity of intensifying the campaign, communicated with the Rockefeller Foundation and secured its coöperation. The President of Mexico issued on January 19 a decree establishing a special committee, composed of members of the Superior Board of Health of Mexico and the International Health Board of the Rockefeller Foundation, of which Dr. Theodore C. Lyster was appointed director, and Dr. Angel Brioso Vasconcelos of the Superior Board of Health, vice-director; the other members were Drs. Emmet I. Vaughan, Bert W. Caldwell, and M. E. Connor of the Rockefeller Foundation, General Enrique S. Orsonio, surgeon general of the Army Medical Corps, and myself representing the Superior Board. The committee, with the coöperation of the auxiliary members which it was authorized to appoint, worked out a general plan of campaign which was approved by the Board of Health. Mobile brigades, working under the direction of members of the committee or of its auxiliary members, conducted a campaign against the mosquitoes according to the best-known methods, draining and petrolizing swamps and pools, placing fish in water containers, and in addition controlling the distribution of vaccine and serum. Each brigade was composed of one inspector, four sub-inspectors, and four attendants, and there were enough brigades to visit the whole region. Quarantine and disinfection measures were carried out by the Army Medical Corps and the representatives of the Board of Health. In small communities it was easy to control the epidemics by isolation of the sick and quarantine of the town.

Cases suspicious of yellow fever occurred in August in Mazatlan and Manzanillo on the Pacific coast, and the director of the committee made an inspection trip there and organized a campaign in that region. In October cases appeared in Las Peñas. One member of the special committee went to Guatemala, where he carried out a similar campaign during July and August.

Table 3 shows the decrease in the incidence of yellow fever during 1921 as compared with 1920. In Tampico only one case has been recorded, and that was probably imported. In Mérida, where the local authorities enforce the regulations and the people obey them strictly, there has not been a single case, notwithstanding the fact that Mérida has been regarded as an endemic focus, and in Veracruz the last non-imported case occurred in March. There have been 8 cases in Tuxpam this year as compared with 187 in 1920. In Payo Obispo (Quintana Roo) one case was observed during September, probably imported from British Honduras, where the disease is known to exist. Drs. Connor and Rojas Aguilar devised covers of metal and wire which make all kinds of containers mosquito-proof; these are used in almost every house in Mérida. Troops sent into infected regions have been vaccinated, and the data will be published at the end of the year.

Up to October 14 the government expended 613,091.82 Mexican pesos, besides the 50,000 assigned to the special committee. Taking into consideration the expenses of local authorities and of the Rockefeller Foundation, as well as of the oil companies, the cost of the campaign during the first ten months of 1921 is calculated to have been 1,000,000 pesos ($500,000).

The First Yellow Fever Convention was held from October 15 to 19 in Mexico City and was attended by the members of the special committee and the representatives of the Superior Board of Health, 25 in number; it was presided over by Dr. Gabriel M. Malda, chief of the Board of Health, and Dr. Alfonso Pruneda, the secretary general. Reports of conditions in the various regions were rendered; Dr. Lyster made a general report, and Drs. Perrín and Pérez Grovas spoke with reference to their experimental work. The convention approved the plan of campaign for the next year, the main points of which are as follows: The republic is to be divided into six areas, and each is to be in charge of a member of the special committee or one of the auxiliary members. Representatives of the Department of Health in these areas will work under the direction of the committee members in charge, who will also select and supervise the personnel of the campaign. Anti-yellow-fever vaccination will be carried out extensively among troops, especially those sent into infected areas, and the data obtained will be published. Education of the public with respect to prophylaxis will be given especial attention, particularly through the schools, according to the plan suggested by the secretary general of the Superior Board of Health in his remarks at the third general meeting of the Yellow Fever Convention (October 18). The areas into which Mexico has been divided for the purpose of the 1922 campaign are as follows:

1. Tampico-Tuxpam, comprising the states of Tamaulipas, Nuevo León, and the northern part of Veracruz (to 20° latitude).
2. Veracruz-Tehuantepec, comprising the southern part of the state of Veracruz (below 20° latitude), the state of Tabasco, and all points located on the Tehuantepec Railway.
3. Yucatán-Campeche, comprising the states of Yucatán and Campeche and the territory of Quintana Roo.
4. Chiapas, comprising the state of Chiapas to the south of the Tehuantepec Railway.
5. Colima-Manzanillo, comprising the states of Colima, Jalisco, Michoacán, and Guerrero.
6. Mazatlán-Culiacán, comprising the states of Sinaloa, Sonora, and Nayarit.

The proceedings of the First Yellow Fever Convention will be published in the near future.

I must not conclude without reference to one of the subjects of discussion at the Yellow Fever Convention. Dr. Juan Guitéras (secretary of the Department of Health of Cuba) has expressed doubts regarding the specificity of Noguchi's leptospira. The confirmatory work of Pérez Grovas has already been referred

to. Perrín reported at the convention that he has found fatty degeneration in the liver of guinea pigs inoculated with *Leptospira icteroides,* contrary to Guitéras' statement that such degeneration is not found in experimental infection with this organism. Perrín presented histological preparations and will send his report on the subject to the Fifth Medical Congress of Cuba, to be held in Havana next December. The results of vaccination and serum treatment published by Noguchi (*Journal of the American Medical Association,* July, 1921) constitute further proof of the specificity of the organism. The opinion of Guadarrama and Graham Casasús, based on their work in the campaign, is that the vaccine is effective, and also the serum, when used during the first three days of disease. Guadarrama vaccinated 2,000 persons in Tuxpam, with the results shown in Figure 1, which is quoted from Noguchi's article. More vaccinations have been carried out in Tuxpam during the present year, but since only 8 cases of yellow fever have occurred there, the new figures do not change the result; it should be emphasized, however, that all of these 8 cases occurred in non-vaccinated individuals.

Rigorous execution and constant improvement of anti-Stegomyia measures, with the aid of vaccination, will ultimately lead to triumph, and in the course of the year 1922 we expect that yellow fever will be definitely eradicated from the Republic of Mexico. We shall thus contribute to the fulfillment of the great Gorgas' dream, to banish yellow fever from the world's surface.

FIGURE 1

COMPARISON OF YELLOW-FEVER INCIDENCE AMONG VACCINATED AND NON-VACCINATED PERSONS, CITY OF TUXPAM, MEXICO, 1920

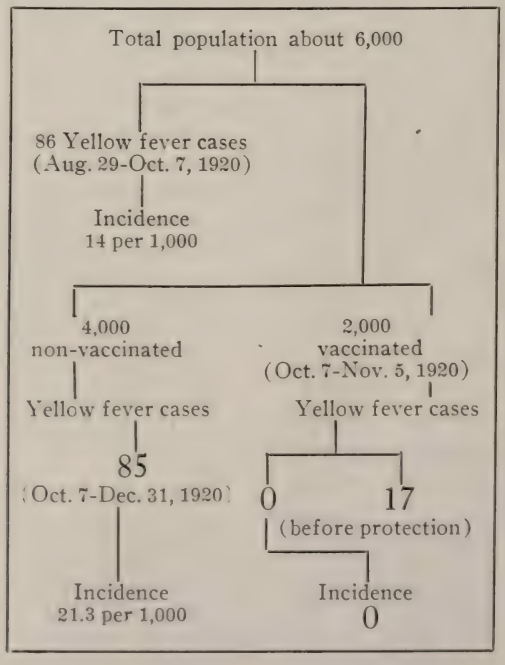


TABLE I

REPORT OF MORBIDITY AND MORTALITY FROM YELLOW FEVER DURING THE YEAR 1903

FEDERAL BOARD OF HEALTH OF MEXICO

States	Towns	Cases	Deaths
Campeche	Laguna	5	2
Coahuila	Saltillo	10	5
San Luis Potosí	Valles	9	9
	San Vicente	6	6
Nuevo León	Monterrey	483	291
	Linares	799	170
Oaxaca	Salina Cruz	29	14
	Tehuantepec	24	24
Hidalgo	Huejutla	16	9
Tamaulipas	Tampico	549	327
	Victoria y Cruillas	218	129
	El Paso de Doña Cecilia	81	40
	Nuevo Laredo	132	55
Yucatán	Mérida	108	87
	Progreso	5	3
	Valladolid	1	0
	Bahía de la Ascención	2	1
	Motul	2	0
	Citas	254	25
	Quintana Roo	1	1
Veracruz	Tantoyuca	7	3
	Pánuco	8	3
	Coatzacoalcos	2	1
	Córdoba	25	6
	Veracruz	1,072	372
	Totals	3,848	1,583

REPORT OF MORBIDITY AND MORTALITY FROM YELLOW FEVER FROM THE BEGINNING OF THE CAMPAIGN IN SEPTEMBER, 1903, UNTIL DECEMBER 31 OF THE SAME YEAR, IN THE CITY AND STATE OF VERA CRUZ

	Movement of Patients			Daily Work			
Year of 1903	Number of Cases Registered	Discharged as Cured	Number of Deaths	Number of Houses Disenfected	Number of Water Deposits Disinfected	Number of Houses Cleaned	Various Notifications
September	93	74	31	91	1,872	147	61
October	176	124	55	87	2,063	233	70
November	51	54	26	39	1,541	43	52
December	19	19	5	52	1,663	107	60
Total	339	271	117	269	7,139	530	243

TABLE 2

STATISTICS OF MORBIDITY AND MORTALITY FROM YELLOW FEVER IN THE CITY OF VERACRUZ FROM JANUARY, 1892, UNTIL NOVEMBER, 1912*

Years	January C[1]	January D[2]	February C	February D	March C	March D	April C	April D	May C	May D	June C	June D	July C	July D	August C	August D	Sept. C	Sept. D	October C	October D	November C	November D	December C	December D	—Total— Cases†	—Total— Deaths
1892.....	?	?	?	2	?	1	?	7	?	20	?	40	?	76	?	53	?	28	?	13	?	10	?	9	?	259
1893.....	19	5	7	1	9	6	17	8	41	17	91	32	105	29	70	8	65	9	11	11	5	5	9	0	449	131
1894.....	0	0	1	0	1	0	16	8	100	39	123	55	116	44	82	38	40	14	32	5	13	3	10	3	534	209
1895.....	8	5	7	1	2	0	5	2	24	12	60	23	106	40	53	36	25	17	7	3	4	3	0	0	301	142
1896.....	0	0	0	0	0	0	0	0	2	0	6	0	3	0	1	0	0	0	0	0	0	0	0	0	12	0
1897.....	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	1	0	1	1	0	0	5	3
1898.....	0	0	0	0	0	0	0	0	0	0	0	0	2	0	20	9	37	24	59	39	43	32	27	23	188	127
1899.....	12	10	8	5	10	7	29	11	302	155	468	193	214	96	109	57	55	32	32	15	7	4	32	9	1,268	594
1900.....	12	3	4	4	1	1	12	14	61	22	79	36	61	26	93	44	102	50	63	34	33	17	22	10	543	261
1901.....	8	1	5	1	0	0	3	2	1	0	8	4	13	6	13	7	16	5	65	19	94	31	43	27	269	103
1902.....	14	7	7	7	18	10	35	19	109	46	98	45	60	36	102	38	74	29	50	13	56	22	55	13	678	285
1903.....	23	12	14	9	17	5	27	8	45	17	111	36	153	50	241	91	189	§58	184	57	51	26	20	6	1,075	375
1904.....	4	1	3	2	2	0	1	0	5	1	11	3	9	1	25	1	8	0	0	0	4	2	1	1	73	12
1905.....	0	0	0	0	0	0	0	0	0	0	0	0	5	1	21	5	10	4	12	8	5	4	1	1	54	23
1906.....	4	3	1	0	0	0	1	1	0	0	0	0	1	1	1	0	3	2	0	0	5	4	1	1	17	12
1907.....	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	1
1908.....	0	0	0	0	0	0	0	0	0	0	0	0	3	1	6	6	5	3	11	3	5	2	13	5	43	20
1909.....	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	‖1	0	0	0	0	0	0	3	3
1910.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1911.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1912.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

COMPARISON OF THE MORTALITY FROM YELLOW FEVER FOR THE TEN YEARS BEFORE, AND THE TEN YEARS FOLLOWING, THE CAMPAIGN

Years	Deaths
1894	209
1895	142
1896	0
1897	3
1898	127
1899	594
1900	261
1901	103
1902	285
1903	228
Total for the ten years before Sept., 1903	1,952

Years	Deaths
1903	147
1904	12
1905	23
1906	12
1907	1
1908	20
1909	3
1910	0
1911	0
1912	0
Total for the ten years following Sept., 1903.	218

[1]C—Cases

[2]D—Deaths

*The data regarding cases registered from 1892 to 1903 were compiled by Dr. Manuel S. Iglesias, Commissioner of the Board of Health; those of the cases occurring during the subsequent ten-year period were gathered by the medical inspectors of the campaign staff.

†The cases recorded for the period from 1892 to 1893 are those observed in hospitals only; those recorded for the subsequent ten-year period include all cases which occurred in the town.

§The campaign against yellow fever was begun in September, 1903.

‖This case was introduced from Progreso on the steamer "Sonora." arriving September 23.

TABLE 3

CASES OCCURRING BETWEEN JUNE 8 AND DECEMBER 28, 1920

State	City	Cases	Deaths
Veracruz	Veracruz	202	87
	Tuxpam	187	97
	Papantla	61	30
	Others	35	21
	Total	485	235
Yucatán	Progreso	5	3
	Others	8	5
	Total	498	243
Tamaulipas	Tampico	5	4
	Total	503	247
Campeche		1	1
	Total	504	248
Territory of Quintana Roo		1	1
	Total of cases and deaths	505	249

CASES OCCURRING BETWEEN JANUARY 1 AND OCTOBER 10, 1921

Veracruz	Veracruz	17	6
	Córdoba	3	2
	Tuxpam	8	3
	Cosamaloapan	14	6
	Gutierrez Zamora	5	2
	Papantla	7	3
	Alvarado	1	1
	Tlacotalpan	1	1
	Campo Petrolero Alamo	4	1
	Purga	1	1
	Barra de penn	1	1
	Tierra Blanca	1	1
	Total	63	28
Sinaloa	Mazatlán	1	1
	Cualiacán	1	1
	Palmar de los Leales	12	7
	Total	77	37
Tamaulipas	Tampico	1	1
	Total	78	38
Colima	Manzanillo*	3	1
	Total	81	39
Jalisco	Tonila	1	1
	Total	82	40
Quintana Roo	Payo Obispo	1	1
	Total of cases and deaths	83	41

*There were 28 cases quoted as "Hemorrhagical Malaria," among which 10 deaths occurred.

THE PRESENT SANITARY CONDITIONS AT GUAYAQUIL WITH SPECIAL REFERENCE TO YELLOW FEVER

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Read at the Third General Session of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 17, 1921.

YELLOW FEVER seems to be something of the past, something that no longer inspires special interest from the sanitarian, an enemy already defeated, something out of fashion. After the victorious campaigns carried on in Cuba, Panama, Brazil, etc., it seems no longer to demand special attention. However, for one coming from Guayaquil, the port that during three quarters of a century suffered from that calamity, and whose ill fame kept travelers away, fearing to approach its shores, and retarded commerce with other nations, it seems natural to speak once more of the place for so many years infected, but to-day free, due to the simple but efficient resources of modern hygiene.

The history of the main features of this successful campaign, and the present condition of what was formerly called "the Pest Hole of the Pacific Coast," may be of value to those interested in present-day sanitary problems.

Guayaquil, with a population of 100,000 inhabitants and an area of five square kilometers, is located on the western bank of the Guayas River, 45 kilometers from the sea and five meters above sea level. Its temperature fluctuates from 20° C. minimum in the cool season, to a maximum of 34° C. during the hot season. From June to December the climate is dry, temperate, and pleasant. During the rest of the year, the rainy season, the temperature reaches the maximum point, the mosquitoes appear and multiply rapidly and the atmosphere, loaded with humidity, is favorable for the development of germs and epidemics.

The streets, after the repeated destructive fires, were widened and straightened—the principal ones paved with asphalt. However, in the suburbs the streets, the patios, and the ground underneath the houses are totally submerged during the rainy season.

Two factors of great hygienic importance for a locality are very deficient in Guayaquil—water supply, drainage and sewerage system. The present water supply comes from brooks in the mountains, about 90 kilometers from the city. The pipe line parallels the line of the Guayaquil and Quito Railroad to the bank of the Guayas River, where it is carried under the river to the city. Its purity is more or less satisfactory, as it is found to contain only a moderate number of B. coli, probably not of human origin. But the amount of water supplied to the city during the twenty-four hours is very small (2,000,000 liters or 20 liters per capita); it should and will be increased at any cost to reach at least an amount five times larger. This insufficiency of volume of potable water, as well as the fact that it runs through the mains only two or three hours a day, causes people to store the water in tanks, cisterns, barrels, etc., thus affording first-class breeding-places for the mosquito.

Toward the southwestern part of Guayaquil there are large marshes which are periodically flooded by the flow of the Estero Salado (a bayou running from the gulf). This water fortunately is brackish enough to prevent the development of the *Aëdes calopus*.

It is probable that yellow fever existed in Ecuador long before 1842, and early historians tell of the occurrence of fevers, violent and fatal, that attacked the pirate crews during their frequent

incursions; and although in a vague manner, they described a disorder that befell the foreigners, which was thought to be the so-called "Siam's disease." Anyway, it is only in the year already cited that we have an official statement of its appearance, imported by a vessel bound from Panama, causing an epidemic that, even disregarding exaggeration, was notable for its frequency and high mortality. Since then the disease has disappeared, apparently, to reappear when a sufficient number of non-immune newcomers and the presence of the mosquito in sufficient number have permitted, according to Dr. Carter's theory, the propagation of the infection brought in by some imported case. Did the yellow fever really disappear from Guayaquil on account of lack of non-immune population, diminution of mosquitoes (Guayaquil had at that time a population not one-half of the present), or were there only periods of latency during which the disease was reduced in intensity and frequency, and would become active with a change of conditions?

Dr. Pareja, at present chief health officer of Ecuador, a former member of the Rockefeller Yellow Fever Commission, in a paper read before the Society of Tropical Medicine (Atlantic City meeting, 1919), expressed his view that yellow fever probably did not disappear from Ecuador before 1919.

The fact is that frequent outbreaks at irregular intervals made a heavy load for the public welfare and progress of the country, and although combated in a certain measure, nothing could be done to stamp it out from the country entirely. The native physicians interested in public-health work followed with interest the admirable work of Finlay, Reed, Carroll, Agramonte, the sacrifice of Lazear, as well as the efficient, successful work of General Gorgas, at Havana and Panama, and of Dr. J. H. White, of New Orleans. However, they could not accomplish much because of the lack of education of the public, and the extended impression that Guayaquil, to get rid of the yellow fever, needed a system of water supply, drainage and sewerage that would abolish the receptacles, tanks, barrels, etc., and in that way make the anti-larvae campaign an effective one.

Meanwhile, the damage caused to lives and commerce of the republic was considerable. People and capital were kept away by a reasonable fear. The quarantine restrictions were very stringent; northbound boats had either to pass by the port of Guayaquil or to take seven days before reaching the next foreign port, in addition to the duty to anchor 2,000 meters below the usual place, and stand a three hours' complete sulphur fumigation, measures very well justified on account of the circumstances.

"The insanitary conditions of Guayaquil is a subject for serious consideration by all the American republics with whose ports it has commercial relations." (American Public Health Report, 1909.) "Guayaquil is the worst infected port in the Western Hemisphere." This and like expressions were frequently found in official documents referring to our port.

During 1915 there was a notable diminution in the number of cases of yellow fever in Ecuador, there being 19 cases reported. They were so rare that for a time the presence of the disease was seriously doubted. Opportunities, however, were offered to perform autopsies of some suspected cases, and the presence of the disease was confirmed as a result of the post-mortem findings. The probabilities are that most of the cases having been atypical, failed to be properly diagnosed.

Before this epoch the United States Public Health Service, with the purpose of facilitating the reception of ships in the American and Canal Zone ports, detailed an officer of the organization to be stationed in Guayaquil, attached to the American Consulate, to see to the fumigation of ships, inspection of crews and

passengers, vaccination, etc., and to report about any condition affecting the public health. In 1909 this officer happened to be Passed Assistant Surgeon Bolivar Lloyd, to whom the Ecuadorean Government recommended the reorganization of the Health Service, with the consent of the Secretary of Treasury and approval of the State Department. At this time the present system of statistics began, a new set of laws and regulations concerning public health was issued, and the organization placed upon a new basis. In 1913, through the suggestion of the Ecuadorean Government, the Panama Canal Zone authorities sent a commission presided over by General Gorgas, for the purpose of making a survey of the hygienic conditions of Guayaquil.

In June, 1916, another commission arrived at Guayaquil, composed of General Gorgas, Dr. Carter, Dr. Guiteras, Dr. Lyster, sanitarians Wrightson, Whitmore and Wakefield, for the purpose of studying yellow fever, on behalf of the Rockefeller Foundation and the possibility of starting an efficient campaign against the disease. The aim of the Foundation, according to the declaration of the commission, was to send sanitarians, experts in yellow fever, to work in coöperation with the local health authorities, to offer pecuniary help when necessary, to supply certain materials like wire screens, and similar aid for such work. This generous offer was accepted by the Ecuadorean Government, and following this agreement another commission, composed of Drs. Kendall, M. Lebredo, C. A. Elliott and Mr. Redenbaugh, arrived in July, 1918. A few days later Dr. Hideyo Noguchi joined them. This commission having for its purpose the study of sanitary conditions, the localization of smaller foci, the clinical varieties of the disease, the inspection of the work done, the estimation of the work to be done, and the discovery of the causative germ of the disease, started to work immediately.

Dr. Elliott performed very important clinical work, about which he reported to the American Society of Tropical Medicine at the Atlantic City meeting in 1919, and Dr. Noguchi, after prolonged and most painstaking investigation, discovered the spirillum now generally accepted as being the causative agent of yellow fever. The history of this important discovery, with its details, has been published in the *Journal of Tropical Medicine.*

Dr. Kendall and Dr. Lebredo submitted a report on Guayaquil conditions to the International Health Board, dealing with the sanitary aspect of the work.

In November, 1918, Dr. M. E. Connor, of the International Health Board, arrived in Guayaquil and announced his purpose to coöperate with the Ecuadorean public-health authorities, starting work at once. With the prestige of his previous successes in Panama, the Philippines and Central America, he was appointer Sub-director de Sanidad, with all the rights and authority of the law and regulations.

Dr. Connor started at once on his anti-larvae campaign, organizing a field force in proportion to the area, dividing the city into districts. To every one of them a personnel was assigned, making an intelligent and extensive propaganda to secure the coöperation of the populace, inspecting every deposit of fresh water capable of affording a breeding-place for the *Aëdes calopus,* which, as we know, deposits her eggs only in fresh water, clean and undisturbed—a home mosquito that does not live in the open field, and does not get very far from its breeding place. This was a favorable circumstance in the fight against it. The plan of the campaign was to make war on the larvae, preventing the laying of eggs, and destroying those already found, and although isolation and fumigation were also practiced, they were of secondary importance.

As it was impracticable in some sections of the city to keep the receptacles

covered all the time, due to the necessity of using the water therein contained, the use of some small fish was adopted (the millions and the chalacos), which voraciously devoured the larvae.

The result of this work can be appreciated by a glance at the following table:

Period	Cases of yellow fever
Year 1918	460
Year 1919 January	85
February	43
March	17
April	3
May	2
June	0
July to December	0

The details of this work, as reported by Dr. Connor, were printed in the *Journal of the American Medical Association* (English and Spanish editions), and reprints of the same have been circulated.

Thus, the last case of yellow fever in Guayaquil, according to official information, occurred on May 22, 1919, no other case having been reported since. Some suspicious cases have occasionally caused a good deal of alarm to the authorities, but investigators have failed to demonstrate at post-mortem examination any characteristic pathological changes.

Dr. Connor, having turned over the duties of his office to the Ecuadorean health authorities, left the country, having received from the government and the people of Ecuador expressions of appreciation for the benefit received. In connection with this, it is worthy of note that the most important difficulty with which our sanitarians have always had to contend, the opposition of the lower classes, did not occur in Guayaquil at all; not even indifference, as so well pointed out by Dr. Carter in cases like this, was felt in Guayaquil, where popular coöperation was readily secured.

The long time during which the city has been suffering from the epidemic, the losses suffered, the depression, the relative isolation—all these things were very well known by the people, and brought home the necessity of getting rid of that handicap and of helping along in the work to that end.

The Ecuadorean Public Health Service, after having received from Dr. Connor the direction of the anti-yellow fever campaign, took up the second part of it, the maintenance of the work, and the carrying on of the sanitary program as laid out and already established. Thus, although with a smaller but more expert personnel, the vigilant fight against the larvae has been continued. The index of the mosquito transmitter of the disease is maintained below five per cent, a percentage that the health authorities are trying to reduce, and will reduce to a point still lower. Tanks are kept covered and sealed, barrels and receptacles, when necessary to keep them open, are supplied with fish, and, what is most important, through popular education, willing and efficient coöperation is shown by the people.

Will yellow fever reappear in Guayaquil, or is it eradicated forever? According to the accepted theory, there are three factors necessary to its recurrence: A non-immune population, a new imported case, and the intermediary host. In Guayaquil at least two of these are lacking—a new case and the mosquito. During the last two years, after the last case of the disease, the proportion of non-immune population has been kept fairly constant by the influx of foreigners as well as by the newborn children (newcomers also), so that if the other two factors were to occur, namely, a new case of the disease and the presence of the mosquito transmitter in due proportion (the critical point raised by Carter), surely the epidemic would reappear. But the *Aëdes calopus* now exists in a proportion of five per cent or less, a ratio that the sanitary service aims to reduce to three per cent. Even in case of the introduction of a person infected with yellow fever, therefore, such a case

would end in death or recovery without contagion, because of the lack of an intermediary host; i. e., the host is not present in sufficient numbers to propagate the infection. The introduction of the case itself into the country on the other hand would be very difficult, even though yellow fever existed in one of the neighboring countries, because at the present time the restrictions on vessels from infected ports make it practically impossible for an importation to occur, and the campaign against the disease is being pushed with energy and skill at every point in America.

Guayaquil, is to-day free from the feared calamity, and American sanitarians are to be credited once more with success. It is true that we have other clinical conditions that perhaps threaten the life and interests of the country more than yellow fever, namely, tuberculosis, malaria, uncinariasis (with which ninety per cent of our population is thought to be infected), amebiasis, syphilis, etc., but yellow fever had something of a local character, without specific treatment, and with a selective affinity for foreigners. Being free from it, all our energies and resources can be concentrated against the others. Meanwhile, the bad reputation of our port is rapidly disappearing; it is already known by all the countries that have commerce with us that Guayaquil is a healthful, reliable town, where all desirable immigration is welcome and has opportunity to develop industrious and fruitful activities. The quarantine regulations, at one time very strict, as has been mentioned, are to-day very liberal, only the inspection and fumigation of holds and crew's quarters for the destruction of rats, in addition to anti-smallpox vaccination, being required.

As a consequence of the change of conditions, the movement of immigrants through the port of Guayaquil has increased, as can be seen by the following tabulation:

Years	Passengers entering the port of Guayaquil
1916	2,997
1917	2,969
1918	2,325
1919	2,988
1920	4,240
1921 (first 10 months)	3,430

The visits made by the distinguished sanitarians to the port of Guayaquil for the past two years have had a favorable influence on the movement toward sanitation. Dr. S. B. Grubb, then chief quarantine officer of the Panama Canal, was the first to come to Guayaquil in 1920 and the modification of quarantine resulted from his visit. Dr. Carter, on his way from Peru, stopped over at Guayaquil to observe conditions, and Dr. J. H. White, assistant surgeon general of the U. S. Public Health Service, on an inspection trip to Ecuador and Peru, called twice at Guayaquil, and his visit had a remarkably beneficial effect on the public-health activities.

Among the native physicians the tendency toward the study of sanitary science and preventive medicine is marked, and the idea that medicine is intended only for the treatment of the sick no longer prevails. To mention only those living in Guayaquil, Dr. Wenceslao Pareja, chief sanitary officer, Dr. Alfred J. Valenzuela, Dr. José Di Moral, and one or two more, have distinguished themselves by the publication of their articles on hygienic subjects.

The Sociedad Medico Quirúrjica del Guayas, our leading medical organization, has a permanent commission of public hygiene, and aims for the development and progress of this science, due importance being given to the old axiom that is so well known, but so little practiced, that prevention is more important than cure.

NOTES ON THE USE OF FRESH WATER FISH AS CONSUMERS OF MOSQUITO LARVAE IN CONTAINERS USED IN THE HOME

Based Upon Experience in Guayaquil, Ecuador, and Mérida, Yucatán, Mexico

M. E. Connor, M.D.
Senior State Director, International Health Board

THE present day campaign to control yellow fever or to eradicate an endemic center of this disease is based solely upon the reduction of the *Aëdes calopus* by anti-larvae measures to a theoretical minimum called the "safety index."

As early as 1908, Carter suggested that anti-larvae measures alone should be sufficient to check the spread of yellow fever and that, faithfully applied for a reasonable time, they should completely clear an endemic yellow fever center. He held that isolation or even screening the sick, the reporting of cases, and the fumigation of infected homes were unnecessary.

The initial campaign to be conducted exclusively along anti-larvae lines was carried on by Converse at Iqüitos in 1913. Beverley applied the same measures with success at Buenaventura, Colombia, in 1916. The first large endemic center to be cleared by strictly anti-larvae measures was Guayaquil, Ecuador, in 1919. Here, for the first time, the systematic use of fish was depended upon to destroy mosquito larvae in fresh water containers.

Unquestionably, a modern water system carrying an abundant supply of potable water, available to the majority of homes at all hours of the day and night, is the measure to be recommended for the permanent elimination of yellow fever from endemic centers, and for rendering other areas non-infectible. Financial considerations, unfortunately, make such a system impracticable for many communities where yellow fever is present. It is in such communities that the sanitarian must resort to the next best plan.

The systematic use of fish in fresh water containers has so simplified the problem, and so shortened the time necessary to reduce the *Aëdes calopus* to the safety index, that it is now accepted as the first temporary measure to be employed in yellow fever areas where fish are available and water is stored in reasonably large containers, such as tanks, barrels, or cisterns. In desert areas such as Carter encountered in Peru, where fish are not to be had, or in communities where the water is stored in receptacles too small to support fish life for the time necessary to conclude a campaign, the mosquito larvae may be removed from the water containers by straining the water through a cloth.

With the exception of metal tanks, for which no satisfactory fish has yet been discovered, fish can be employed as larvae destroyers in all classes of reasonably large water-storing receptacles. The four factors needed to insure their effectiveness are:

That the fish be in a sound condition when placed in the container.

That the water in the container receive sufficient air to support fish life.

That the container be protected from the sun.

That there be placed at the bottom of the container, against the side, a cave-like arrangement beneath or behind which the fish can rest or can hide when frightened. A condensed milk can, a curved piece of earthenware, or an elevated stone device made by resting a flat stone on two other stones, will suffice.

As a general rule, all fresh-water fish that can adapt themselves to the confines of containers will consume mosquito larvae. I have used with excellent re-

sults species of top minnow, carp, pike, mullet, and perch, and also shrimp and small turtles. Unfortunately, some species of fish which consume great quantities of mosquito larvae are unable to adjust themselves to the narrow limits of the average container. These usually free themselves by "jumping," or else become sluggish, and sicken and die. At Guayaquil the "huijas," a most satisfactory destroyer of mosquito larvae, would throw itself three feet into the air in its efforts to escape from a barrel.

Larvae-eating fish may be roughly divided into "top feeders" and "bottom feeders." All top-feeding fish are most effective where there is plenty of sunlight. They seem unable to locate larvae in dark containers, such as partially covered tanks or cisterns. They are very satisfactory when placed in swimming pools, pilas, fountains, and other open receptacles. Here they not only thrive, but increase in numbers, and keep the containers continually free of mosquito larvae. It is the bottom-feeding fish, however, that have up to the present given the best results in reducing the *Aëdes calopus* index in both Mérida and Guayaquil.

In Mérida the following was the procedure for stocking the various types of containers:

Aljibe or cistern, one fish only, preferably male ..... Bottom feeder
Well, if filled from below, two or more ..... Top feeders
Well, receiving rain from roof or patio, one or more ..... Bottom feeders
Barrel, one fish only ..... Bottom feeder
Pila, fountain, etc., two or more. Top feeders

The usual method of securing a supply of fish for containers is to arrange with local fishermen to furnish a fixed number at stated periods. The contractor delivers the fish into a prepared pila, well, or cistern, being paid only for live fish. These are allowed to rest a few days before distribution begins. The cost varies with the supply and demand, averaging from one-half to one cent each. A pin-hook with raw meat is used to catch the fish. The injury resulting from the pin-hook is a very slight one, from which the fish readily recovers; less than two per cent so caught have died. When fish are plentiful a "throw net" is used.

While the fish are in the health department's pilas they receive a small ration of white bread daily. Once distributed, they must feed upon such material as is to be found in the water containers. The health service does not advise or encourage home feeding of the fish, for fear they will be overfed and become too sluggish to hunt larvae.

Fish are distributed in the following manner to the staff in charge of control measures: Each district inspector anticipates the day's needs and notifies the central office, which in turn submits each list to the man in charge of the pilas. This employee takes from the pila the number of fish requisitioned, all being selected for their size and apparent soundness, and delivers them to the central office. Here the district inspector receives a day's supply, which he places in a five-gallon pail half filled with clean, fresh water. It is necessary to change this water frequently during the day to insure the fish sufficient oxygen to keep them in fit condition to be transferred to their new home. Unless this small detail is observed, many fish will die soon after being placed in a container, thus prejudicing people against the experiment.

The question frequently arises as to the possibility of fish excrement contaminating the water. This might occur if a large number of fish were placed in a container holding a small quantity of water. To avoid such a contingency, inspectors are instructed to place one fish, preferably a male, in receptacles holding drinking water.

In the case of pilas, fountains, and similar containers, the foregoing possibilities do not have to be considered. The health department may, therefore, use this class of receptacle as hatcheries, and thus assure a future supply of fish adapted to life in small containers.

WORK OF THE MASSACHUSETTS-HALIFAX HEALTH COMMISSION

B. Franklin Royer, M.D.
Executive Officer, Halifax, Nova Scotia

Read before the Public Health Administration Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, February 14, 1921.

On the 6th day of December, 1917, the "Mt. Blanc," loaded with high explosives, collided with the "Imo" in Halifax Harbor, resulting in one of the greatest explosions of history. In the twinkling of an eye, two thousand homes were completely destroyed, many thousands of homes were seriously damaged, 1,635 persons were killed and thousands of others were crippled or injured. In large areas in the city of Halifax, in the town of Dartmouth, and in several settlements adjacent to each, practically all residences were completely knocked down and in some instances such remains as were left standing were destroyed by fire. The concussion from this explosion was so tremendous that it was definitely felt at points sixty miles away, and in one instance was even reported one hundred and twenty miles away.

On the very day of this terrible disaster, within a few hours after the explosion occurred, the good people of Massachusetts sprang to the assistance of the stricken community. Relief trains, fully equipped with supplies, doctors and nurses, were on the way to Halifax hours before telephone and telegraph communication had been reëstablished.

Later on, a Massachusetts-Halifax Relief Committee was organized and three-quarters of a million dollars was raised for continuing the emergency relief. A local committee in Halifax, of which Dr. G. Fred Pearson was chairman, was designated to distribute the supplies and monies contributed. This local committee's work has received only the highest praise from citizens of the community.

After the period of emergent relief had passed and the Dominion Government had organized its relief commission on a basis of unprecedented magnanimity, there remained unexpended in the hands of the Boston committee approximately $250,000. Before determining what should be done with this large balance, the Boston committee consulted with their local representatives in Halifax and finally decided to have a complete study of conditions and needs made by a neutral person. Dr. Victor G. Heiser, director for the East of the International Health Board, was fortunately secured, and during the summer of 1918 he reviewed health conditions and needs as he found them following the explosion, and from available statistics, for a period of seven years prior to the disaster. On his recommendation, the Boston committee determined that the unexpended balance might best be utilized, if agreeable locally, in an endeavor to improve public-health conditions in the city of Halifax and in the town of Dartmouth.

Dr. Heiser pointed out specifically that because of overcrowded conditions, certain to obtain during the years required for restoration and rebuilding and during the years of rehabilitation, much greater public-health effort would be required than formerly to prevent death-rates from rising. Feeling that the time was opportune for inaugurating an advanced public-health program, it was recommended to the Boston committee that this money be expended in a public-health and preventive medicine campaign to extend over a period of five years, and in order that the demonstration might be complete and satisfactory, the recommendation provided for endorsement by the provincial and city government in ad-

vance, and that each should make substantial contributions, $5,000 annually in the way of funds or facilities, for carrying out the program. It was also recommended as advisable that the Halifax Relief Commission, an organization doing splendid work as the government's agent, in settling claims, rebuilding and rehabilitating the community, should provide a sum of $15,000 annually for five years, with the understanding that certain of the terminal medical and social work in connection with rehabilitation be done by the new organization. These sums would provide $75,000 a year for a population of a little less than 75,000.

Dr. Heiser's recommendations were agreeable to the Boston committee, as well as to the Halifax Relief Commission, and the provincial and local departments of health. A great deal of time was consumed in securing the approval of the agencies concerned. All agreed finally and it was considered advisable to have a special commission created to carry out the public-health program recommended. It was not until the latter part of May, 1919, that an enabling Act of the Provincial Legislature was passed, making possible the organization now known as the Massachusetts-Halifax Health Commission.

The various members of the Commission were appointed during the summer of 1919. The commissioners met for organization on September 22 and for conference with social and welfare agency representatives of the community on September 25. The present executive officer was secured on the first of October, 1919, and the public-health and preventive medicine campaign was launched as rapidly as possible during the latter part of 1919.

Dr. Heiser's constructive recommendations provided for an executive officer, public-health nurses, a broad gauge public-health educational campaign, modern supervision and treatment of milk and water supplies and modern sanitation in every particular.

In carrying out the Heiser recommendations, difficulties arose in securing buildings that might be adapted for health center purposes in the city of Halifax and town of Dartmouth. Through the good offices of the Department of Naval Affairs, old Admiralty House, a commodious stone structure with large lawns and a garden, erected originally by the British Navy in the early eighteen hundreds for the purpose of residence and of entertainment of the admiral when the imperial fleet was in Halifax Harbor, was secured for health center purposes. The building had been renovated and freshly equipped for use during the war as a naval hospital, and lent itself splendidly to the community's needs. It was one of the few buildings to escape destruction in the devastated area. Admiralty House was made Health Center No. 1. In it were organized, as rapidly as a staff could be secured, prenatal, child welfare, preschool age and school age advisory and operative ear, nose and throat services; preschool age dental clinics, nutrition and posture classes, advisory and diagnostic tuberculosis services, a special psychopathic clinic for the explosion victims, and, under the local provincial government, clinics for the treatment of venereal and skin diseases.

Each of these services is covered by public-health nurses for the purpose of getting in touch with families and making instructive visits to the homes of those patronizing the clinics.

In Health Center No. 1, rooms are set aside for class teaching along hygienic and sanitary educational lines, and a certain amount of miscellaneous community education is undertaken as well. With the coöperation of St. John's Ambulance, first aid classes are conducted in the center, finishing with special lessons on personal hygiene. Boy scouts and girl scouts are brought to the center for instruction along the same lines, and numbers of young people are brought in groups from churches and factories in

A GLIMPSE OF DR. ROYER'S WORK AT HALIFAX

A few nose and throat cases already operated upon



Below.—An interesting view of the baby clinic, Halifax



At the nose and throat clinic



Left.—Part of the staff at the Dartmouth Health Center

Below.—Entrance to Admiralty House Grounds





the vicinity, to the teaching rooms, for health talks, lantern lectures, public-health moving pictures, etc., given by the public-health nurses and various members of the staff.

The splendid garden on the grounds is used by families found by the public-health nurses living in lofts or slum lodgings where no ground is available. The families (thirty) are encouraged and taught to cultivate and grow vegetables suited to the particular family needs, thus acquiring health, education and a desire for a home with a garden. A day camp for undernourished children is conducted on the grounds during the summer by the Anti-Tuberculosis League.

Plans are now being made for organizing classes in cookery in the health center for young women in the neighborhood, who often marry without sufficient training in supplying a family with food necessities and without knowledge of budgeting.

As soon as this first health center was fairly well organized, a second building was secured for health center purposes in the town of Dartmouth. In this instance, the building had been outgrown as a government postoffice. Centrally located, with electric lights and hot-water heat, when renovated it was almost ideal for a health center in a town of eight thousand. Here, tuberculosis, child welfare, eye, ear, nose and throat clinics and nutrition classes are organized, and the same sort of community teaching, with the exception of gardening, is being carried on in well-appointed rooms. Here the Victorian Order of Nurses, the I. O. D. E., the King's Daughters, and the G. W. V. A. meet and coöperate with the staff.

In the beginning of this work, the call elsewhere was so great that it was almost impossible to secure suitably trained public-health nurses. The Commission's executive officer, who, fortunately, had been called in consultation by the Red Cross Society of the Province, advised the Society to join the Commission's forces and Dalhousie University for the purpose of organizing a course in public-health nursing to train the nurses who are essential to public-health teaching in any community. These organizations agreed and were joined by the Halifax Welfare Bureau, the Victorian Order of Nurses and various charitable and philanthropic societies. By September, 1920, a class of nurses who had completed a six months' course and who were suitably trained for home teaching and health center work was available to the community.

The educational publicity and general educational work are directed from the central offices by the executive officer. Newspaper interviews, pamphlet publications, illustrated lectures and talks before clubs, churches and women's organizations of every sort and kind have been resorted to. Some "outfield" work, having a more or less direct influence on the local educational campaign, is conducted by accepting invitations to lecture at various points in the Province, always giving opportunity for reports to reach the local community through the press. The Commission's staff coöperated with the Red Cross in promoting the health caravans last year, helped with the publicity and speaking, and helped plan their triumphal return.

In May, 1920, a trained public-health nurse with years of experience in organization work, was engaged to assist the executive officer and to direct the nursing end of the work.

A full-time tuberculosis expert was secured in June, 1920, to work along plans very much like those at Framingham, i. e., he was to have general charge of all tuberculosis clinics and to serve as consultant to the community.

A series of advisory clinics were organized in the health center during the summer and autumn of 1920. The doctors were appointed to serve without salary, each, however, to be given research study allowance at the end of any twelve month period.

In order that physicians of the com-

munity might be given greater diagnostic laboratory advantages, and that the various health center clinics might have the advantage of scientific investigation and check, permission was obtained from the provincial government to place a full-time pathologist-bacteriologist with technician in the provincial laboratory. These places were filled in June, 1921, and the scientific services are being greatly appreciated by physicians and by the public.

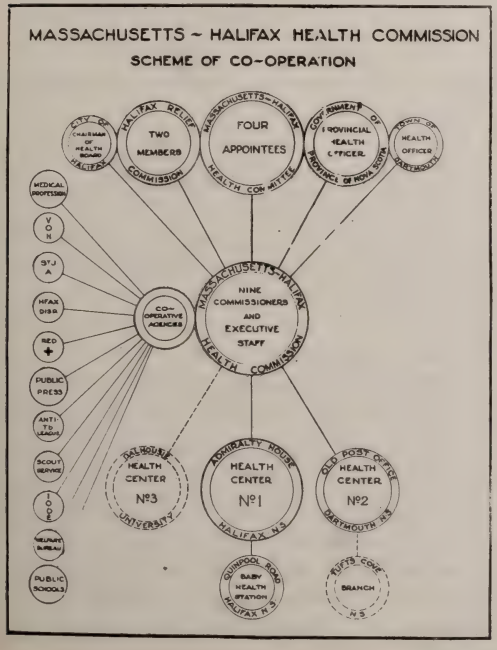
With the opening of the various clinics and publication of monthly reports, the work of the Commission began to be more and more appreciated by the community. Within seventeen months of the opening of the first of these clinics in Health Center No. 1, more than one thousand families came under the supervision of this health center for medical advice, and half as many more came under nursing supervision in the district. A proportionately large number of families came under the supervision of the second health center, after its opening in March, 1921.

At the present time 2,000 families are under the medical and nursing supervision of the two health centers. Fourteen physicians and one dentist of Halifax and Dartmouth are associated with the Commission's various health center services, a chief nurse, twelve public-health nurses and one visiting housekeeper are employed. Two special nurses and two secretaries are also employed.

The work of the first health center, when reviewed by representatives of the International Health Board of the Rockefeller Foundation, influenced them to "earmark" $200,000 for building a Dalhousie health center for the south end of Halifax. This new health center is being planned for the University as an integral teaching unit of the medical school, and will serve as an out-patient department to the group of hospitals now growing up in the immediate vicinity of the medical school. With health center service for the southern half of Halifax conducted by the medical faculty from a University building, staffed with public-health nurses, students of medicine will be given great clinical opportunities and will here for the first time be given ample opportunity to study domiciliary causes of diseases, and a chance to acquire a better fundamental ground work for preventive medicine.

The general scheme of organization and the general plan of operation can perhaps be set forth best diagramatically. It would be described about as follows:

The Commission consists of nine men, three of them being members by virtue of their offices: the provincial health officer, the chairman of the Halifax City Health Board, and the health officer of the town of Dartmouth. Two are appointed by the Halifax Relief Commission, and four by the Massachusetts-Halifax Relief Committee of Boston. The Commission acts under a special provincial law and meets semi-monthly. Policies are determined by the Commission and work directed through the executive officer and staff. The provincial and local health authorities are members of the Commission for



the purpose of coördinating the established work of each with the new work undertaken by the Commission. It is the aim and object of the Commission to do such lines of health work as should properly come under the local health officials in each community, and to work in the closest coöperation with all privately endowed philanthropic and charitable agencies, so that a minimum amount of overlapping will occur and waste will be avoided.

The public-health nursing program is wholly constructive in character and is a very large feature of the work. Each nurse is responsible for the entire public-health program in the district assigned her and for the health of every member of each family with whom she comes in contact. She seeks to remove as far as possible domiciliary causes of disease, and to train and reëducate the family in right methods of living. In emergency only, or for family demonstration, is bedside nursing done. (The Victorian Order of Nurses does the routine bedside work in homes and gives general family instruction during such intervals.)

The health nurse's work is supplemented by instruction in the home given by a visiting housekeeper where families coöperate and nutrition problems are paramount.

The public water supplies require only the protection of sheds and germicidal treatment of water. This is wholly the work of the established health authorities and engineers. Some means of protection of water sheds have been provided for in both communities by posting warning notices, and in Dartmouth by fencing also. Halifax is treating the water supply with chlorinated lime. Dartmouth will be obliged to do so. The Commission's laboratory staff studies samples of water frequently for the purpose of watching bacterial content, reporting all findings to local health officials.

The milk supply is not well-handled. In Halifax a start has been made by employing a full-time veterinary inspector and by promulgating regulations covering farm production, shipping and retailing. Dartmouth has done nothing as yet. Both communities are remote from production and draw their supplies to a very large extent from poorly equipped dairies. Further, because of slow railway and retail deliveries, these milk problems are comparable to those of large cities.

Pasteurization will have to come for safety. Efforts are being made to create a public opinion that will demand pasteurization. Unfortunately, a good deal of backward education has to be overcome. Notwithstanding the fact that thirty per cent of the milk and ninety per cent of the cream in Halifax is now being pasteurized, a number of physicians and one scientific worker until recently opposed pasteurization. It may require another year to overcome this influence.

Halifax has recently opened a fifty bed tuberculosis hospital where advanced patients will be admitted for special care, the Commission's expert, laboratory staff and Dalhousie's teachers being available for this service. A preventorium is needed. Preparatory educational steps are being taken.

Improvement in sanitation is coming about with the rebuilding program of the Halifax Relief Commission—the Dominion Government organization which is represented on the Massachusetts-Halifax Health Commission—and with the street building and sidewalk program of the two communities.

It is the ultimate hope of the Commission that toward the end of a five year period such striking public-health results will be shown that Halifax and Dartmouth will be eager and willing to plan for furtherance of the work. They hope that before the end of the period for which money is now available, both Halifax and Dartmouth will begin to

finance the work more liberally and will plan to take over every activity proved to be valuable in lessening sick rates and saving lives. It is hoped that the death-rates obtaining when the work was begun, an average general death-rate of above 20 per 1,000, and an infant rate above 180 per 1,000 for a period of ten years for Halifax, will be dropped to 13.5 and 100, respectively, by the end of the first quinquennial period, and in Dartmouth to 13 and 100, respectively, in the same time. It will be the aim of the Commission to make public-health education, the prevention of disease and saving of life give sufficient impetus to preventive medicine in these communities that abundant funds will be readily forthcoming for continuing the work in the future, and also to set a splendid public-health example on the northeastern part of the American continent.

INNOVATIONS IN NEW YORK'S HEALTH AGENCIES

New Health Bureau. — Three Jewish health agencies, the Jewish Consumptives' Relief Society, the Jewish Board of Sanitary Control, and the Social Service Department of the Free Synagogue, have recently united in the support of a health bureau which will give to poor Jews free information and advice about physicians and hospitals. Although the health bureau will be chiefly devoted to giving personal information, it will also arrange lectures, and publish in Yiddish, literature on hygiene. — *Better Times,* January, 1922.

Bureau of Children's Guidance. — The Commonwealth Fund has undertaken to finance for a period of five years a broad and comprehensive experiment in methods of preventing delinquency. In organizing the program it has seemed wise to concentrate effort on one or more particular sections of the field where definite results can be obtained which will assist the coördination and systematizing of child welfare work as a whole.

The program is built around three agencies: the National Committee for Mental Hygiene, the New York School of Social Work and the Public Education Association of New York. The appropriation made by the Commonwealth Fund provides for a children's clinic, known as the Bureau of Children's Guidance, to be a part of and under the direction of the New York School of Social Work.

The new Bureau is located at 9 West 48th street and is under the direction of Dr. Bernard Glueck.

Children presenting behavior problems from at least five of the public schools of the city will be given a thorough psychiatric examination at the clinic. The number of children handled will be limited to those who can be effectively treated with the facilities available. The clinic will provide knowledge through a scientific diagnosis, and will place special emphasis upon subsequent treatment, coöperating with the visiting teachers provided by the Public Education Association, with the general school staff and other available agencies.

The complete work of the clinic will be available for the field work of the students of the New York School of Social Work. Not only will there be resulting benefits to the children concerned, but the experiment will surely point the way to the development of similar work in other communities. The Bureau plans primarily to limit its efforts to the study of behavior problems as found in individuals of school age, including the adolescent group, and it is hoped that in the five-year period provided for there will grow a better understanding of the possibilities of dealing with behavior problems before they become seriously crystallized.

The Fund provides for a number of scholarships to the New York School of Social Work for properly qualified students.

IMPORT DISEASES AS THEY AFFECT THE WORK OF THE NEW YORK CITY HEALTH DEPARTMENT

ROYAL S. COPELAND, M.D.
Commissioner of Health, New York City

Read before the Public Health Administration Section of the American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 15, 1921.

HUNDREDS of thousands of immigrants enter this city from various infected ports in which such diseases as smallpox, typhus, cholera and plague may be epidemic or endemic. The detection of disease in these immigrants is dependent first, upon the ability and interest of the ship's doctor; second, upon the adequacy of the staff of medical inspectors assigned to quarantine.

While the usual checks operate fairly effectively in ordinary times, there is always a danger of cases slipping through without being detected because of hurry, incompetence, difficulty of making a diagnosis, or failure from any cause to observe suspicious symptoms. This danger is greatly magnified when epidemics exist in foreign countries, and particularly when the volume of travel is great.

For these reasons, until immigration and quarantine methods are improved, it is essential, in the interest of the millions in the various communities throughout the country who may receive immigrant settlers coming through this port, that we should have an additional safeguard and not depend on the single filter established by the medical inspection service of the federal government.

Last spring the New York City Health Department established its own quarantine and examined every person entering the city. Now, as a result of that examination, we have found thousands of immigrants coming from countries where typhus fever was endemic or epidemic who were infested with lice brought to this country from abroad. We have found trachoma in many immigrant children in the public schools and, no doubt, if a factory survey were made, we would find this disease among immigrant industrial workers.

There is not a clinic in the city that has not had to treat venereal diseases in recently arrived immigrants. The crews of many of these vessels are infected with venereal diseases, and their presence in our community for varying periods of time constitutes a grave public-health menace.

We have eight thousand merchant sailors in New York every day, and it is estimated that at least six thousand of them have the worst type of venereal disease.

The quarantine officers allow first cabin passengers and usually the second cabin passengers coming from abroad to enter with very little or no medical inspection, as if the possession of money to buy better accommodations were a guarantee against various infections.

Examinations have shown that the vessels, especially the wooden vessels, coming from ports where typhus fever in particular was prevalent, had myriads of lice and sometimes other live carriers of disease in the ballast, and not infrequently in the food and other cargo brought over. In vessels coming from plague-infected countries, not infrequently rats were found, and our city ordinances and measures must provide methods of protection against these rodent carriers of disease, or we stand in great danger of the development of plague.

The New York City Health Department was called on several years ago, when cholera was prevalent in certain European countries, to assist quarantine in examinations for the detection, not

only of cholera suspects but of healthy carriers as well and many were found. Who can say how many cholera carriers there are among immigrants who have been admitted through this port, who may take up food handling in various parts of the country, or who may spread the disease by unclean habits in their homes?

There is practically no quarantine safeguard that New York and other seaport cities possess against coastwise travel and trade. Little more than a year ago a fishing vessel which coasted down from Canada to Long Island had more than a score of cases of smallpox develop among its crew. Of these cases, two came into New York, and one or more were found in certain localities in New Jersey.

Moreover, after cases have passed quarantine inspection, they are frequently herded in insanitary conditions at Ellis Island, where the possibilities for the development and spread of disease are many, and these cases may enter the city of New York and spread to various communities throughout the country, carrying disease with them.

I made the statement last spring that if I had my way I would declare Ellis Island an infected port, and I would not let anyone come to New York from that port.

These various facts show that New York City, in common with other ports of entry for hundreds of thousands of immigrants annually, must be more adequately protected, and that the New York City Department of Health has a definite function and responsibility. Obviously, unless the Federal Government devises better methods, the time is here for cities like New York, owing to rapid growth and to the thousands of immigrant additions to its population, to have a method of control and follow-up of newly arrived immigrants. In this way we may locate disease which has escaped discovery at quarantine. It is our duty to inculcate hygienic habits and protect the sanitary surroundings of such individuals, so that they may not through faulty habits or through overcrowding spread disease. This undertaking should reach not only to the home, but it should be conducted especially to see that immigrant children do not introduce disease dangers into our schools and that the industrial population is protected against immigrant disease.

We must not overlook the fact that while many of our immigrants are splendid additions to our national resources, many of them come from benighted countries. They labor under ignorance, or have, as a result of poverty together with ignorance, acquired social and community habits which are a distinct menace.

We have no way of determining at the present time whether the tuberculosis situation in this country has been intensified by the addition to our population of immigrant tuberculous persons who may be the sources that feed the flames.

I spoke one night last spring down in East Broadway in the heart of the Ghetto, in the Educational Alliance. There were about one thousand present in the audience, and it seemed to me as I looked at them that half of them must have just landed here. I was interested to know what the health of their children might be, and the next day I sent an inspector to the schoolhouse, and in one school room he found eleven children infected with tuberculosis, nine of whom had just landed here.

What I have said is not intended to reflect upon the officials of the U. S. Public Health Service. Like Sisyphus, they are attempting to push a stone uphill. Without sufficient strength in the way of appropriation, they are helpless.

Until Congress recognizes the absolute necessity of spending money to protect the nation, the menace of disease from abroad will ever threaten New York City and the country at large. There is frank prejudice in Congress against the expenditure of money for the protection of

the public health. This comes either from ignorance, or from the failure of health officials in the United States to impress our national legislators with the necessity of action.

It is time that the American Public Health Association arose in its might and demanded of Congress a fuller recognition of what the country needs in the way of health protection.

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FUNCTIONS OF THE PUBLIC HEALTH LABORATORY IN CONTROLLING THE IMPORT DISEASES

William H. Park, M.D.
Director of Laboratories, New York City Health Department

Read before the Public Health Administration Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 15, 1921.

THE functions of a public-health laboratory in controlling the import diseases are chiefly diagnostic. They are in many respects similar to those of any public-health laboratory, but differ in others.

The usual laboratory is not faced with the necessity of preventing the dissemination of diseases which are not endemic in a country. If a stool from a suspected case of typhoid fever or a culture from a suspicious throat is improperly handled, and a negative report is wrongly given and preventive measures therefore omitted, a few cases of typhoid fever or diphtheria may be added to the number which would have otherwise occurred in the community, but no new kind of infection is spread. The public has no knowledge of the error and therefore no excitement is created and no blame results. If, however, cholera should be imported because the laboratory failed to isolate the vibrios in the stools of a case or a carrier, a spirillum which did not otherwise occur in this country would gain entrance, and, although under present conditions it is almost inconceivable that such infection should become widespread, there would still be sufficient possibility of this accident to arouse the public-health authorities to take drastic measures to absolutely stamp out this invading infection. The importance of protecting the country from external diseases requires, therefore, that the quarantine laboratory should be excellently manned and equipped.

In another matter the quarantine laboratory, acting as a preventive of import infection, differs from the home laboratory. Quarantine service touches great personal and great financial interests. This is especially the case if the laboratory is dealing with overseas vessels. If a case of suspected smallpox occurred in a home or even in an apartment building or lodging house, it would not mean any great inconvenience to many people if the suspected case and all in contact were kept isolated until in a leisurely manner a very careful investigation was finished.

The conditions are very different when an ocean liner, with from 1,000 to 2,000 passengers, or a great cargo, is waiting to have it decided whether or not a passenger or sailor has typhus fever, bubonic plague or cholera. If an undetected case of any one of these diseases is passed into the country, the health authorities are put to expense and great public excitement is created; while, if a vessel is unnecessarily detained, thousands of passengers are greatly inconvenienced, the steamship companies have their expenses greatly increased and commerce is seriously affected. It is clearly evident that technical skill and good judgment of the highest order are necessary among those who must decide in any given case how far public safety requires the holding up of commerce.

The diagnostic laboratory should in the first place have on hand everything necessary for quickly and efficiently carrying on the necessary diagnostic procedures, such as an adequate supply of slides, swabs, tubes, specific agglutinating sera and media for carrying out the work. A trained force with suitable supplies can quickly obtain accurate results and make a reliable report. Before considering very briefly the value of the laboratory in detecting some of the import diseases, I should like to say a word about the nature of the laboratory force.

I believe that not only should the laboratory have trained technicians but, at least in large quarantine stations, that one of the laboratory force should have some medical training and be competent to make inspections with the medical officers and help decide what cases are suitable for laboratory help. For instance, it might well happen that the clinical physicians would not appreciate the value of a Felix Weil test in a slightly suspicious or convalescent case of typhus fever, while the laboratory representative trained both in medicine and in laboratory technic, would avail himself of opportunities which might be overlooked by the specialized clinical staff.

What degree of protection should we demand from the importation of diseases?

Although it is true that most people expect the quarantine station to absolutely prevent the passage of an infected person into a country, it must be remembered that they also expect quarantine procedures not to unnecessarily block traffic or interfere with the freedom of the passengers.

I think that we will all agree that if an active case of typhus fever, cholera or bubonic plague passed quarantine inspection it would cause more perturbation than real danger. We know so well the methods by which these diseases are transmitted and controlled, that it would be belittling our own power to control the spread of these diseases if we really feared that the introduction of a few cases of any one of these diseases would really start an epidemic in the United States or Canada. We are justified, however, in guarding the gates at quarantine so thoroughly that no alarm of the uninformed public and no expense to local health authorities unnecessarily results.

The point I wanted to make is that if every few years an undeveloped case of typhus fever, cholera or plague or disease carrier passes the barriers, it may be through no fault of the quarantine station or laboratory. It may be simply due to the fact that in order to facilitate proper traffic among the nations, slight chances are knowingly taken. The English health authorities have for years operated their quarantine on this basis.

The quarantine laboratory may be not only an aid in excluding the import diseases mentioned, but also an aid in excluding persons who, though no more a menace than many of our citizens, are not desirable as newcomers. The laboratory might be asked to make examinations for leprosy, tuberculosis and the venereal diseases. Research could also be properly undertaken in those diseases in which laboratory assistance is desirable.

The three important diseases in which the laboratory is of use are typhus fever, cholera and bubonic plague. It is of value also in relapsing fever, leprosy, and venereal diseases.

Typhus fever: Between the third and fifth day the blood of up to 50 per cent of typhus fever patients will agglutinate in fairly high dilutions the proteus bacillus isolated by Felix and Weil. During the next few days the great majority of the remainder will react. Few, if any diseases other than typhus fever give this reaction.

At the Rosebank Quarantine Laboratory, Mr. Holt Harris has obtained the reaction in all of 70 cases believed to be typhus, and in none of a much larger

number who were healthy or were suffering from other diseases. A preliminary slide agglutination can be done on the vessel or a report issued within two hours if the blood is sent to the laboratory. Although the test is nonspecific, it is of extreme value. Suspicious convalescent cases can be tested in the same way and information thus gained may be very helpful.

Cholera: Cases not having diarrhea are given a dose of salts. After the salts have operated a sterile swab is passed into the rectum and withdrawn. It is dropped into a tube of peptone solution. When all the crew and suspected passengers have been cultured, the tubes are incubated for eight hours. A loopful of the surface growth is inoculated into a second tube of peptone solution and these are examined after eight hours. When abundant spirilla are found on the surface of the peptone solution, these are tested with a highly specific anticholera serum. These tests can be completed in from twenty-four to thirty-six hours and are almost certain to detect carriers and cases. Plate cultures, isolation of the spirilla, and agglutination tests may be used for verification.

Bubonic plague: Some bubo material, blood or sputum, is cultured on nutrient agar, some is planted in broth and some is rubbed on the shaved skin of a guinea pig. Other material is spread on slides, stained and examined. After twenty-four or thirty-six hours the cultures are examined. If after investigation the cultures are still suspicious, they are fished and examined. If colonies are suspicious they are inoculated in guinea pigs and rubbed on the hair free skin. The results are known in about forty-eight hours and are very reliable.

Leprosy: When a person is suspected of leprosy a bacterial examination of bits of skin from the suspected area will frequently give a positive result. The absence of acid-fast bacilli is not absolute proof that the case is not leprosy.

Relapsing fever: Blood examinations can be made in doubtful cases and those identified as relapsing fever isolated at quarantine or sent to a city hospital.

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Meeting of American Association for the Advancement of Science.—The second Toronto meeting of the American Association for the Advancement of Science and of the associated scientific societies was held during the last week of 1921. Dr. L. O. Howard, chief of the Bureau of Entomology of the United States Department of Agriculture, the retiring president of the Association, delivered an address at the opening meeting on "The War Against the Insects." Dr. J. Playfair McMurrich was elected president of the Association for 1922.

The Section of Medical Sciences of which Dr. A. J. Goldfarb, of the College of the City of New York, is secretary, presented a symposium on "The Health and Development of the Child." The following program was announced:

Vice-presidential address, The Past and the Future of the Medical Sciences in the United States—Professor Joseph Erlanger, professor of physiology, Washington University.

Hereditary Factors in Development—Dr. Charles B. Davenport, director of the Laboratories for Experimental Evolution of the Carnegie Institution.

The Metabolism of Children in Health and Disease—Professor Harold Bailey, Cornell Medical School, New York.

Newer Aspects in Dietetics of Children—Dr. Alfred Hess, College of Physicians and Surgeons, New York.

Movie Exhibition of Tonsil-Adenoid Clinics in Operation—Dr. George W. Goler, health officer, Rochester, N. Y.

The Mental Hygiene of Children—Dr. C. M. Hincks, associate medical director, Canadian National Committee for Municipal Hygiene, Toronto, Canada.

REPORT OF THE COMMITTEE ON SCHOOL HEALTH PROGRAM

Read before the Provisional Child Hygiene Group of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 15, 1921, and adopted by a vote of those present.

THE present post-war and nation-wide interest in child health, and the increased and broadened activities of both official and unofficial agencies in this field indicate that the time is opportune for the adoption of a comprehensive school health program. The health promotion value of such a program is unquestioned, and the responsibility for its establishment rests in no small measure upon the public-health profession.

In some communities the initial stimulus for the improvement of health conditions in the public schools has come from the health authorities, and in other cases from the department of education. Because of these variations, and because of the varied history, interest, and duties of the two departments in different cities, it is not possible to make any statement regarding what the distribution of activities should be.

It is quite obvious, however, that the government, which requires the compulsory attendance of children in the public schools, accepts the responsibility to maintain and improve the health of school children by every practicable and feasible means. The health department, which has the responsibility for the promotion of community health, and the school department, which has the responsibility for the education of the child, must coöperate if this work is to be permanent and cumulative in its effect. In the last analysis, local conditions must always determine the nature of this coöperation.

The earlier developments in this field included improvement in the machinery for controlling communicable diseases among school children, and a better organization of the effort to correct bodily defects which were found to exist. There is no doubt in the mind of the health officer as to the importance of either one of these tasks. The first he regards as the fundamental function of any health agency, and, with statistics from the draft and from physical examination of school children at hand, he realizes most keenly what the early correction of defects would mean to the health of the whole population.

But this work should not stop with the prevention of disease and the correction of physical defects. To be most effective it must go further, and give to the child by training and instruction a correct set of health habits, a properly functioning body, and an understanding of the hygienic conduct of life. Your Committee, therefore, believes that the minimum essentials of a good school health program include: health protection, correction of physical defects, and health promotion.

The Committee on School Health Program was appointed by the president of the Association early in the current year, and in view of the fact that school health work is now in its developmental stage, it has not seemed wise to report upon the details of administrative procedure at this meeting. The Committee, however, recognizes that, in spite of the variation in professional opinion and in local conditions, a report upon these details might be of definite value, and it recommends that the Association appoint a committee on health problems in education which shall further address itself to this problem, and which shall be given power to affiliate itself with the Joint Committee of the National Education Association and the American Medical Association.

The present report sets forth the fundamental activities and requirements of the School Health Program, grouping them in the following fashion:

I. Health protection.
   a. Sanitation of the school plant.
   b. Examination.
      1. Physical.
      2. Psychological.
   c. Communicable disease control.
II. Correction of defects.
   a. Special classes.
   b. Clinics.
   c. Follow-up.
III. Health promotion.
   a. Hygienic arrangement of the daily program.
   b. Physical activities.
   c. Health instruction and motivation for teacher, pupils, and parents.

I. HEALTH PROTECTION

a. Sanitation of the school plant. In this matter the Committee accepts the principles laid down in the Report on Minimum Health Requirements for Rural Schools of the Joint Committee on Health Problems in Education.

Although its construction is not always possible, the one story school building is the ideal in new construction where practicable. School buildings should be so designed as to permit the adoption of open window conditions for all classes, irrespective of the physical condition of the pupils.

b. Examination.

1. Physical examination. The Committee approves of the general principles set forth in the Report on Health Essentials for Rural School Children prepared by the Joint Committee on Health Problems in Education.

There should be a complete physical examination of all pupils by a physician at least once a year for detection of correctible defects.

In so far as possible, school physicians should be employed on a full-time, instead of on a part-time basis.

A rapid survey of children should be made at the beginning of the school year and after each extended intermission, for the purpose of excluding all sick children.

2. Psychological examination. The Committee is opposed to the indiscriminate use of the usual mental tests by school teachers, school principals, medical inspectors, and nurses, who have not had special training and experience. The application of psychological tests should be entrusted only to trained psychologists or psychiatrists. Examination by a psychiatrist is desired for all children found by these tests to be abnormal.

c. Control of communicable diseases. The Committee adopts, in so far as it relates to the control of communicable disease in schools, the report of the Committee on Model Health Legislation of the A. P. H. A. called "The Model Health Code for Cities." (Published, March, 1921, by the A. P. H. A.)

Daily inspection, by a well-trained nurse, of all classes to which she is assigned, and the prompt exclusion of all children suspected of having communicable disease is the *sine qua non* of efficient control.

II. CORRECTION OF DEFECTS

a. Special health classes. The necessity of thorough health instruction for all children is set forth in Section III. It is the furtther duy of the school system to supply special classes for those children whose health does not enable them to stand the regular work of the school session. The term "special health class," as here used, refers to class room instruction provided under special conditions for groups of children selected on the basis of some defect. The definition does not include occasional group meetnigs of children for special instruction.

a. Special classes.

1. Open air classes are advocated for physically debilitated children of the anaemic, glandular, and undersized type, and for children with heart lesions showing broken compensation, whose disease does not in the physician's judgment prevent school attendance.

Small buildings on open lots are most desirable. Temperature is maintained at approximately 55° F. Kitchen facilities and mid-morning lunches should be available. Equipment should include movable

furniture, resting chairs and blankets or sleeping bags. Twenty-four pupils of two grades, or thirty pupils of one grade, is the maximum class number. A specially arranged program with physical examination upon entrance, weekly visits by the school physician, daily visits and follow-up work by the school nurse, should be provided for these children.

2. Sight conservation classes are advocated for children of one-third to one-tenth normal vision. They teach the conservation of sight, class room subjects and hand work. The room must have good light, preferably a north or northeastern exposure. Glare must be eliminated. Equipment should include movable and adjustable desks, unglazed paper, soft black pencils, readers with large print (24 point) on yellow tinted, unglazed paper. Study is alternated with periods of manual work or exercise.

(Special classes for the mentally deficient, blind and deaf are not included here because their primary requisite is not health conservation or improvement.)

b. Clinics. The term clinic as here used refers to a place where examination and treatment of some sort are given under medical or dental supervision, with or without advice in methods of health improvement. It is urged that in the interest of economy, public clinics, either municipal or private, shall be used for school children wherever possible.

1. Dental clinics. Every child requiring dental work should, as far as possible, be sent to a private dentist. Parents should be urged to secure treatment. Only children whose home conditions warrant it should be sent to a clinic. Dental clinics in the neighborhood of schools should be advocated.

2. Eye clinics. Clinical facilities for the treatment of eye cases are recommended upon the same basis as clinics for dental treatment.

3. Nutrition clinics. Proper food habits should be taught in the general class room and to special groups, but nutrition clinics under medical direction are recommended for children who are in such condition as to require medical care, with special attention to nutrition, and who cannot receive the attention of a private physician.

4. Posture clinics. The teaching of correct posture to all children should be supplemented by posture clinics for children who are suffering from scoliosis or other defects requiring the medical or hospital type of treatment in correction, and who are not able to have the attention of a private physician.

5. Heart clinics. In the treatment of children with heart defects, functional and organic defects should be separately diagnosed, and children with organic defects should be placed under hospital or private medical treatment.

6. Tonsil clinics. Clinical facilities for the treatment of tonsils and adenoids are recommended on the same basis and principles as employed for the treatment of other physical defects.

7. Tuberculosis. Positively diagnosed cases of tuberculosis should be given treatment and instruction elsewhere than in the public schools.

c. Follow-up. The utilization of public-health nurses is an accepted principle in public-health procedure. Follow-up work endeavors to secure the coöperation of the family, in having the children cared for by the family physician or dentist. If circumstances do not permit this, nurses should assist in securing medical aid from the public clinic. They should, however, accompany the children to clinics only upon the written request of parents.

III. HEALTH PROMOTION

Health promotion activities require (1) such an arrangement of the daily program as to keep fatigue at a minimum, (2) physical activities to relieve necessary fatigue and build strong, properly functioning bodies and minds, (3) such instruction to teachers, pupils, and

parents as will secure the formation of proper health habits for the individual, school, home, and community.

a. Hygienic Arrangement of the Daily Program. There should be such an arrangement of the daily program as to secure the most favorable conditions for activity, by a suitable alternation of study with work and play, of the use of the large with that of the small muscles, of activity with rest periods, of indoor with outdoor activities. Short relaxation periods between classes are indicated when the exigencies of the school program prevent the suitable alternation mentioned above.

Hot school lunches should be available for all pupils who are unable to get home regularly during the noon intermission. It is equally necessary that the child should have a suitable breakfast before coming to school.

The number of hours per day which shall be required of the child in a properly regulated school program should be graded according to the age, and the mental and physical resistance of the child.

The basis for admission and promotion should be the physical and psychological condition of the child rather than the chronological age alone.

b. Physical Activities. At least 180 minutes per week should be available for vigorous physical exercise. The type of exercise should call into play vigorously the large fundamental groups of the big muscles. These exercises should be supplemented by others to bring into play the finer muscles of coördination. Games should be so conducted as to develop alertness, cheerfulness, and fairness. Special attention should be given to the development of habits of good posture. School credit should be given for physical activities.

c. Health Instruction and Motivation. The goals of health instruction are to establish health habits, to give the child a practical knowledge of the principles of healthful living, to develop health ideals, and to arouse a sense of individual responsibility for the health of the community, and community responsibility for the health of the individual.

A sanitary school environment and a proper attitude on the part of the teacher are constant features in developing suitable health attitudes on the part of the child.

The content of health instruction must vary with the age and grade. In the kindergarten and lower four grades, the chief effort should be to develop health habits mainly by inspections and special devices.

In subsequent grades systematic instruction should attempt to crystallize and fix the health habits which have been taught heretofore, and to provide the pupil with necessary information concerning the physiological basis for healthful living, the principles of bacteriological cleanliness, and the sanitation of the community. The teaching of first aid and simple facts about home nursing should be included in the instruction program. The care of the teeth should be taught by instruction and by toothbrush drills. The importance of mental hygiene should not be forgotten.

The work of each grade should be so planned that the necessary repetition of facts will not be dull, and that new material shall be presented in each grade. The positive conception of health, rather than the negative conception of disease, should always be emphasized when possible.

Satisfactory results are impossible unless interest and enthusiasm are maintained. The use of special devices and activities is necessary to achieve that end. These include such things as health inspections, experiments, illustrations, dramatization, songs, the making of scrap books, contests, child organizations, and the keeping of health habit score cards.

The mental and physical health and health habits of the teacher are important factors not only in determining individual efficiency, but also in the progress of the pupils, and every effort should be made to maintain the highest possible health standard throughout the teaching force.

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FIVE YEAR COMPARISON OF VITAL STATISTICS, STATE OF INDIANA*

	1921		1920		1919		1918		1917	
	Total	Rate	Total	Rate	Total	Rate	Total	Rate	Total	Rate
BIRTHS (stillbirths excluded)	67,850	23.2	64,809	22.1	59,273	20.1	64,313	22.1	63,073	21.8
DEATHS (stillbirths excluded)	35,134	12.0	39,430	13.4	37,077	12.5	46,361	15.9	39,785	13.7
Infant deaths under 1 year of age	4,860	...	5,296	...	4,690	...	5,685	...	5,327	...
Infant mortality rate per 1,000 births	....	**71.6**	....	**81.4**	....	**79.1**	....	**88.4**	....	**84.4**
TOTAL DEATHS WITH RATE PER 100,000 POPULATION FROM FOLLOWING DISEASES										
Tuberculosis (all forms)	2,712	92.7	3,151	107.7	3,268	110.8	3,969	136.3	3,980	137.4
Typhoid fever	360	12.3	282	9.6	338	11.5	398	13.7	497	17.1
Measles	71	2.4	286	9.8	70	2.4	120	4.1	550	19.0
Diphtheria-Croup	700	23.9	358	12.2	320	10.9	428	14.7	444	15.3
Scarlet fever	154	5.2	198	6.6	79	2.7	117	4.0	144	4.9
Whooping cough	348	11.2	261	8.9	64	2.2	469	16.1	251	8.6
Pneumonia (all forms)	2,347	80.2	4,150	141.6	3,348	113.5	5,640	193.7	3,714	128.4
Influenza	311	10.6	2,290	78.1	2,929	99.4	6,301	216.4	565	19.5
Diarrhea-enteritis (infants)	1,110	37.9	1,032	35.2	1,028	34.8	1,240	42.6	1,478	51.1
Puerperal septicemia	183	6.2	224	7.6	187	6.3	245	8.4	203	7.0
Cancer (all forms)	2,681	91.7	2,592	88.4	2,518	85.4	2,558	88.0	2,542	89.9
Smallpox	21	.7	15	.6	12	.4	24	.8	14	.5
Accidental causes	1,913	65.3	1,968	67.2	1,804	61.2	2,198	75.5	2,401	83.1
Homicidal deaths	186	6.4	135	4.6	130	4.4	109	3.7	194	6.7
Suicides	431	14.7	327	11.1	364	12.4	339	11.6	423	14.6

*Prepared by H. M. Wright, director, Division of Statistics, Indiana State Board of Health.

FATIGUE IN INDUSTRY

EUGENE LYMAN FISK, M.D.
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Read before the Industrial Hygiene Section of the American Public Health Association, at the Fiftieth Annual Meeting, November 18, 1921, New York City

FATIGUE may arise in the central nervous system, the muscular system, or in both combined. It may be subjective, as experienced by the worker, or objective as noted in his actions and output. In industry fatigue arises chiefly in the central nervous system.[1]

Unfortunately, in most discussions of industrial fatigue, a falling work curve or diminished output among employees who have not reported ill is accepted as a complete, uncomplicated reflection of fatigue. This sweeping assumption is wholly unjustifiable.

From a thorough consideration of the literature it is quite evident that a vast amount of emphasis has been laid upon the mechanical or extrinsic factors influencing the working capacity, while the multiplicity of intrinsic original physical or mental states that may limit the working capacity have been almost wholly ignored.[2, 3-8, 9-15]

Emphasis has been laid on fatigue toxins, although it is doubtful whether any specific fatigue toxin exists, or whether metabolites in the blood resulting from muscular work can really cause fatigue in ordinary factory labor, except under conditions of unusually prolonged, severe or violent muscular work. In fact, skilled labor is much more liable to cause fatigue because of the demand it makes on the central nervous system.[16]

Bainbridge reviews the evidence and says: [17, 19]

> There appears, therefore, to be no secure foundation for the belief that products of muscular activity take any share in bringing about fatigue of the nervous system. * * * The conclusion that fatigue as observed among industrial workers is essentially of nervous origin is of considerable practical value.

After discussing various factors apart from work, such as fear, emotion, anxiety, worry, and the preventives of fatigue, financial gain, emulation and other stimulating influences, he mentions the general health as reacting on working power, but does not develop this phase of the question. He lists the following table from Vernon:

27 MEN SIZING FUSE BODIES (HEAVY LABOR)

Period	Average hours of work per week	Average (relative) output per hour	Average output per week
(1) 6 weeks	61.5	100	6150
(2) 6 weeks	51.1	109	5570
(3) 8 weeks	55.4	122	6759
(4) 3 weeks	56.2	123	6969

He comments as follows:

> The results shown in this table point to the conclusion that, at least in this particular occupation, the maximal working week, consistent with the avoidance of cumulative fatigue, is fifty-six hours. For lighter forms of work, Vernon found that longer hours could be worked without loss or even with improvement of output.

While in an immediate sense these conclusions are justified, the workers themselves must be studied as to all the factors, apart from work, that have influenced their output. We have little hesitation in saying that the most important factors relate to the original fundamental condition of physical and mental health of the workers before the work tests were applied. Cumulative fatigue is stressed by most writers, but the obvious influence of impaired health, in determining as cumulative fatigue what would otherwise be physiological and rhythmic, is ignored; that is, infection may so depress an individual as to prevent him from rallying from ordinary

physiological fatigue, and thus carry him over into cumulative fatigue.

Important studies have been made in this country comparing an eight-hour plant with a ten-hour plant, reported in *Public Health Bulletin No. 106.*[7]

It seems unfortunate, however, that this painstaking and critical scientific investigation should have been reported under such a caption. It is not actually a comparison of an eight-hour plant with a ten-hour plant, but a comparison of a highly organized, stable and unusually efficient automobile plant, in which the employees were very fortunately situated with regard to many factors other than an eight-hour day, with a metal-working establishment where the operations had not long been standardized—a plant described in the report as one of the "mushroom growths of war industries," where the workers were unfavorably situated with regard to many matters apart from the ten-hour day.

In order fully to appreciate the gaps that exist in fatigue studies with regard to the underlying factors of causation, an analysis of Florence's critical and otherwise comprehensive presentation of this subject from the conventional standpoint may be useful. Florence defines industrial fatigue as "a diminution of working capacity caused by length or intensity of some activity in 'a gainful occupation,'" and he rightly insists that in fatigue studies we must first show the fact of a definite diminution of working capacity, and second, associate the diminution "with the fact of a definite increase in the length or intensity of activity." This expresses a sound principle, but would be more correctly stated: "Associate the diminution with a certain *degree* or *duration* of activity," as fatigue might still exist under certain conditions even though hours be shortened and labor lightened.

If these principles were logically observed in fatigue investigations and in the interpretation of the evidence, the subject would not now be so obscured by the total neglect to evaluate the factors contributing to fatigue other than "intensity or duration of labor."

Florence lists a number of industrial conditions that are related to fatigue and its prevention. In this list no less than fifty-six important factors are noted, such as age, race, sex, habits, mental states and other personal items; but no mention is made of physical condition, presence or absence of such conditions as physical defects, infections, low blood pressure, endocrine imbalance, defective vision, defective hearing, constipation, poor nutrition and anemia.

In proceeding to discuss the fatigue question, Florence lists the following subjects and a chapter is devoted to each:

A. The output rate per given period of time.

B. The consumption of mechanical power at any given moment.

C. The rate of accidents per given period of time.

D. The proportion of spoiled work to output.

E. The proportion of sickness and unrest among the industrial population.

Under the subject of the proportion of sickness and unrest among the industrial population, the *British Health of Munition Workers' Committee Memorandum No. 10* is quoted: "An undue proportion of sickness in any group of workers usually represents, among those not actually sick, lessened vigor and activity"; and also: "Sir James Paget remarks that 'fatigue has a larger share in the promotion or permission of disease than any other single causal condition you can name.'"

The discussion is then carried along the line of considering sickness as the result rather than the cause of fatigue.

Lee's general attitude is the same, and he likewise quotes Sir James Paget.[2] No doubt fatigue can lower resistance to infection and produce ill health. But that existing states of

ill health are wholly due to working conditions, or even partly or in any sense due to working conditions, can only be determined by first excluding other factors of prime importance that relate to the physical state of the worker before the strain of working conditions was imposed.

Laboratory studies cannot be applied to human activities unless a due sense of proportion is observed. The amount of physical exertion represented in Abbott and Gildersleeve's experiment with rabbits, quoted by Lee,[2] must be shown to be equivalent to the muscular exertion and mental strain represented by a long working day, before its implication as to a lowering of resistance to infection in man equivalent to that exhibited by the rabbit is accepted. A more correct comparison would be that of a rabbit busily engaged in doing his normal work with a man likewise engaged. It is probable that few industrial workers of the present day are pushed to a length even approaching the extremes of physical exertion represented by the experiments in animals; all of which emphasizes the need for human observation under proper control and in proper selection of homogeneous groups for comparison — conditions almost wholly lacking in fatigue studies to date.

In the report of the British Health of Munition Workers' Committee,[8] fatigue is defined as "the sum of the results of activities which show themselves in diminished capacity for doing the work." This is a correct definition of simple, uncomplicated fatigue; but that it is unjustifiable to apply it without clarification to the phenomenon of falling output, or even subjective consciousness of fatigue, which the British worker aptly describes as a condition of being "fair-whacked," is a contention well supported by the Committee's own statement that "without health there is no energy, and without energy there is no output."

What, then, could be simpler or more rigorously demanded in a fatigue study than to ask: What was the original physical state of health of these people before they were tested as to their resistance, productivity and reaction to working conditions? The Committee frequently emphasized the importance of health and even of medical examination and the personal hygiene of the workers in special lines, but throughout the report and throughout the discussions and comments that have been based on these reports, we find fatigue presented as the great cause of ill health and no adequate emphasis on the long range of physical impairments, many of them arising in infancy, that must necessarily limit the working capacity.

If these defects were inevitable or irremediable, we should be under the necessity of ignoring them and considering the worker as he stands—imperfect. As statistics have shown that more than 50 per cent of the defects are preventable or curable, the implication is obvious as to the need for evaluating them according to their influence on so-called fatigue, and working to correct fatigue at its original source rather than by measures that compromise with sub-standard health.

The British Committee states that fatigue is measured by:[8]

1. Output.
2. Accidents and spoiled work.
3. Lost time and staleness (being "fair-whacked" or American "all in").

The remedies lie along the line of:

1. Observation of output.
2. Studies of sickness returns and lost time.
3. Adjusting hours and conditions to physiological needs.
4. Food, rest and recreation.

This obviously fails to include the fundamental measure we have stressed.

In contrast to the report of the Committee on the Health of Munition Workers, we have that of the British National Service Board[20] in charge of the physical examinations for the army. The unanimous opinion of the boards represented

by the Committee is to the effect that the low physical standards found were chiefly due to faulty rearing, to neglect of preventable physical deficiencies and not *per se* to working conditions, or even to poverty.

The physical conditions revealed by the British draft examinations are ample to account for lowered working capacity. But there is nothing in the facts revealed to justify the opinion that a mere shortening of the working day and lightening of labor will correct the original, underlying physical deficiencies. Many of these defective people would no doubt be immediately relieved and benefited by shorter working hours and lighter work, but the upbuilding of the health of the British nation requires much more than regulation of working hours or even improvement of working and social conditions. The individual must be better taught how to live and build up a strong body, free from defects, competent to do a full day's work, and holding something in reserve for emergencies.

Gilbreth,[21] presenting the mechanical viewpoint, states that in a fatigue survey the most important data are those which have to do with lighting, glare and reflection, alternate sitting and standing, dark-colored walls, types of chairs used, and similar influences. To such influences he ascribes a loss in productivity of 20 cents per worker for each and every working day. This would mean a loss of $60 per annum for each worker, or about $2,500,000 per annum for the entire working population. Further proof is required to support such figures; but if 50 per cent of such saving from the correction of mechanical environmental defects is possible, what value shall we attach to a critical physical examination that reveals more than 50 per cent of the working population with defective vision requiring correction?[24] How much fatigue can we prevent by such correction as compared to the relatively trivial influence of environmental factors?

We would say that in a survey of fatigue it is first necessary to inquire:

Does the output fall because the worker is tired, or because he is physically deficient?

Is the worker ill because he is tired, or tired because he is ill?

Inasmuch as physical examinations have shown that more than 50 per cent of any group of industrial workers are in need of medical attention,[25] this enormous factor which has been practically ignored in fatigue studies is entitled to first instead of last place. Comparisons of the productivity of six-, eight- and ten-hour plants do not give real testimony as to the optimal working day in any industry, unless we know how many in the group are affected by preventable or curable conditions, such as infected teeth, infected tonsils, constipation, faulty diet; and mental poison such as home worries, suppressed or thwarted emotions or aspirations, conditions which may, and probably do have far more influence on working capacity than mechanical environmental influence—even hard work and long hours, unless carried to irrational extreme.

In a recent report by Vernon,[18] an attempt is made to distinguish between the factor of fatigue *per se* and other environmental factors, such as exposure while in a state of perspiration and other careless habits while at work. An excess of rheumatism and respiratory troubles are related to such causes rather than to fatigue. There is failure in this discussion, however, to consider the influence of original physical defects or infection, such as infected teeth, infected tonsils, etc., as factors in lowering resistance to fatigue, morbidity and mortality in the occupations studied. There is implied recognition of this principle, however, in the general conclusions drawn, as follows:

> The data as a whole appear to indicate that in men of good physique the fatigue of heavy work has, as a rule, but little direct effect on sickness and longevity. * * *

At the time these observations were made, many of the steel smelters, rolling-mill men and blast furnace men were on a twelve-hour day, while the puddlers were usually on an eleven-hour day.

In contrast to the syndrome of industrial fatigue we have the syndrome of unemployment. Dr. Wade Wright[22] has described a condition noted at the Massachusetts General Hospital during the periods of unemployment which could properly be so characterized. Apparently able-bodied men would come to his clinic complaining of vague digestive disturbances, headache and other conditions apparently of a functional type, and these men were often accompanied by their wives who endeavored to assist in explaining the patients' condition. These cases were so numerous that they were critically followed up and their relationship to unemployment fairly established, and psychiatric consultation enlisted in analyzing the symptoms. It was definitely concluded that they were a distinct class created by the conditions of unemployment, and analogous to psychoneurotic types that had been observed during the war, when invalidism, idleness, hospitalization, or other circumstances, were the evident root causes of the psychoneurosis. It is recognized by specialists in this field that normal productive occupation, sufficient to make a full call on the powers of the individual, is the most effective means either of prevention or of cure.[23]

The main contention in this argument is that fatigue is a problem in pathology as well as physiology; that the pathological factors causing fatigue have not been given due consideration in previous investigations; that these factors should be accorded adequate consideration in future researches, lest false standards with regard to the optimal working day be set up for the working population, and a compromise made with subnormal health conditions.

Now that there is such a flood of light being thrown on the underlying condition of industrial workers, it is necessary to restore balance in fatigue investigations and take account of the enormous pathological factors that have heretofore been wholly ignored. To bring out clearly the principles involved, the following extreme illustration may be serviceable:

Referring again to the comparison of an eight-hour plant with a ten-hour plant, let us assume that all the individuals in each group are tuberculous. It is quite conceivable that the workers in the eight-hour plant, or even the workers in a four-hour plant, would in the long run give a better account of themselves than the workers in the ten-hour plant. But it would be very unfortunate to proceed from such an experience to draw the conclusion that an eight-hour day or a four-hour day would be the optimal working period for a reasonably healthy subject. The shortening of the hours of labor has not constituted a fundamental correction. It is merely a surface correction that does not strike at the root of the trouble. A working population in which there is a large percentage of focal infection, constipation, uncorrected visual deficiency, flat-foot, sub-nutrition and the like, is different in degree but not in kind from a population that is tuberculous. It is quite conceivable that if the workers in the eight-hour plant and the ten-hour plant have their physical deficiencies corrected to a reasonable extent, there would be no difference whatever in the efficiency or rate of productivity in the two plants, and until these physical factors and original physical states of the workers have been ascertained and their influence investigated, it is scientifically incorrect to explain any recorded improved efficiency in an eight-hour plant as compared to a ten-hour plant, wholly on the ground of shortened hours of labor or the labor-saving devices in the plant.

The greatest danger in such a misinterpretation lies in the fact that false standards will be set up for those in a sound condition of health and a com-

promise made with subnormal health conditions, most of which can be corrected or, at least, mitigated. To put it more tersely, the threshold for fatigue is lowered in the sub-standard individual. The mere psychological effect on such an individual of a ten-hour day may impair his rate of production throughout the day, and it is easily understood how his work in the latter hours of the day might be negligible. There are no studies thus far made that reveal the threshold for fatigue in a working group that is reasonably free from physical defects.

The eight-hour day may prove to be the optimal day for the average worker on the broad ground of social welfare and happiness, but it should not be fixed as the physical limit of normal healthful labor without adequate supporting scientific evidence.

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THE RELATION OF PUBLIC HEALTH NURSING TO OTHER PHASES OF WORK OF THE STATE BOARD OF HEALTH, WITH SPECIAL REFERENCE TO THAT OF THE DIVISION OF CHILD HYGIENE

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MOST state boards of health are organized along lines of functional activities which represent a composite of specialties. For convenience in considering this subject we will group the activities as (a) vital statistics and (b) all other phases of health work. The latter classification represents the essentials of a united effort to materially affect the conditions revealed by the former, viz., morbidity and mortality statistics. The so-called "all other phases" represent merely a means to an end, the ultimate aim of all health work being tangible results.

Having a direct relation to a common aim, the relationship of all phases of work of a state board of health is direct. Representing, as public-health nursing does (generally speaking), the most recently developed activity of the majority of state boards of health, its greatest possibilities for service are (a) as a supplementary factor in strengthening activities already undertaken, and (b) in developing new preventive and educational activities that belong to the field of nursing. Thus the stage of development and the type of organization of a state board of health largely determine the position of public-health nursing therein.

The question arises how public-health nursing may best serve the state board of health: (1) As an independent bureau or division of equal rank with all other divisions; (2) combined with a division of child hygiene, or (3) as a subordinate activity of the child hygiene or some other division.

THE FIRST PLAN: AN INDEPENDENT DIVISION OF PUBLIC HEALTH NURSING

Organization on a basis coördinate with other divisions is the plan generally favored. Of the eighteen state boards of health replying to an inquiry regarding the position occupied by public-health nursing and its relation to child hygiene work, four have independent divisions or bureaus of equal rank with other divisions, one is contemplating this, and two others favor it, though they have not yet established such divisions.

It is imperative that the head of such a division be a liberal-minded public-health nurse of large experience, who is able to appreciate a health officer's point of view toward public-health nursing (whether he be a state or county official), as well as a nurse's point of view, and who can uphold the dignity of the state and of her own office. She and the health officer must have mutual respect for and confidence in each other.

The advantages of such a plan are many:

(a) With a division so established, responsibility for management and development is placed where it rightfully belongs, viz., upon nurses, corresponding to the responsibility of a hospital nursing staff. This encourages initiative, for best endeavors and results are secured in proportion to responsibility placed.

(b) An independent division of nursing insures the greatest amount of work with the fewest workers and least expenditure.

(c) The plan admits of linking up

with the official health agency a number of independent workers in isolated fields throughout the state, thus increasing the nursing staff without affecting the budget. The advantage of having such an increased staff interpreting to their localities the aim and activities of the state board of health is obvious.

(d) In return, independent workers derive the advantage of advisory and supervisory service from the official health agency, which they desire, and feel the board of health should be in position to supply. They accept supervision as leadership that insures the best type of service, upon which results so largely depend. (Why should not industrial, tuberculosis, infant hygiene and other public-health nurses throughout the state be local representatives of the nursing division of the state board of health?) Should any one be permitted to work as a public-health nurse in ignorance of the policies of her state board of health and existing public-health laws, or even without authority to enforce such laws if she is the only health worker in her community?

From an economic standpoint it is usually impracticable for each division to develop and function independently so far as nursing personnel is concerned.

It is sometimes difficult for a director of a division of nursing to keep the heads of other departments satisfied with the amount of nursing assistance they receive. This demand may be met by having a public-health nurse detailed to any other division of the state board of health for service in executing the nursing part of that division's program. Such a plan has worked the past two years in North Carolina; a public-health nurse from the Bureau of Public Health Nursing goes with each county tuberculosis diagnostic clinic. An examining physician supplied by the State Tuberculosis Association, and the county Red Cross nurse complete the clinic personnel. This places the administration of the tuberculosis clinic, so far as public-health nursing is concerned, as well as the supervision of clinic nurses, under the Bureau of Public Health Nursing, the nurses assisting in securing results for the Division of Tuberculosis.

Such a plan works equally satisfactorily with the Bureau of Epidemiology, with which the midwives register. A representative of the Bureau of Public Health Nursing has kept appointments made by the Bureau of Epidemiology in ninety out of one hundred counties where midwife conferences were held. Acquaintance with laws regarding midwifery, and demonstrations of compliance therewith, have obtained for the Bureau of Vital Statistics more complete records, secured a larger registration of prenatal cases in the Bureau of Infant Hygiene, and reduced undesirable results in the Bureau of Epidemiology—all through the medium of the Bureau of Public Health Nursing.

Similar satisfactory coöperation with the Bureau of County Health Work has been established, where the Red Cross county nurses, working under the general supervision of the Bureau of Public Health Nursing are detailed to the personnel of the county health departments. The plan also works in conducting child-health conferences in different counties. The Bureau representative keeps the United States Public Health Service records of examinations made by the county health officer, assisted by the county nurse. The results are credited to the county health departments.

(e) Public-health nursing in the future will have a wider field and occupy a less exclusive position. Being primarily educational and preventive, public-health nursing as a part of the whole activities of a state board of health affects beneficially all branches of the work, whether sanitary improvements, compliance with public-health laws, or maternal and infant hygiene.

(f) Representing the heretofore miss-

ing link between the health department and the home, a separate division of nursing tends to build up machinery of great assistance in carrying out the program of a child-hygiene division, and fundamental to its success. However, child hygiene and public-health nursing cannot be tied up as though they were one and the same thing. A nursing staff alone does not adequately fulfill the functions of a division of child hygiene, nor are public-health nurses necessarily qualified to carry on all types of child-hygiene work.

A division of child hygiene warrants the full attention of the medical staff, plus the coöperative assistance of public-health nurses, nutrition experts, dental hygienists, and expert pediatricians—all doing child-hygiene work, and none of whom can entirely satisfactorily be replaced by a different type of worker. There is little in the child-hygiene field that belongs peculiarly to one type of worker. An ambitious program for an inclusive child-hygiene division has been outlined to cover: prenatal care, infant care, preschool care, children of school age, supervision of environment, children in industry, mental health of children, neglected and dependent children, etc.

There are certain things which make practical, though not so desirable—

THE SECOND PLAN: COMBINED DIVISION OF CHILD HYGIENE AND PUBLIC-HEALTH NURSING

Chief among the reasons for such coördination are: (a) economic necessity; (b) the stage of development of the state board of health, and (c) a situation in which part of the child-hygiene interests are delegated elsewhere. This plan obtains in North Carolina, as public-welfare legislation covers the dependent and delinquent child. A previously established division, that of Medical Inspection of Schools, operates corrective clinics (dental, tonsil and adenoid), and provides for physical examination of school-children.

Seven of the state boards of health which replied to our inquiry had combined divisions of child hygiene and public-health nursing. They report as follows:

Three, satisfactory arrangement for the present.
One, established with idea of later having separate divisions of child hygiene and public-health nursing.
One, thinking favorably of making two divisions of equal rank.
One, wishing two divisions, but because the public-health nurses are doing more child-hygiene work, and for purposes of economy in administration, will remain coördinated.
One, growing rapidly into two divisions of equal rank.

THE THIRD PLAN: A SUBORDINATE ACTIVITY OF CHILD HYGIENE OR SOME OTHER DIVISION

If the child-hygiene division is not to absorb most of the activities of a state board of health, the complete nursing staff should not be a subordinate activity. Should the benefits of public-health nursing be thus restricted to any particular age group? Even though the need in this group is possibly greatest, should the next greatest need be lost sight of? Only when public-health nursing has developed as the outgrowth of one piece of health work in states with adequate medical, hospital, dispensary, and clinic services, should it occupy a subordinate position in one of the divisions. Such a plan might be satisfactory to that particular division but it precludes the possibility of public-health nursing operating in the field of rural sanitation and epidemiology as they affect children, as well as other interests which should be the legitimate function of other divisions.

Only one state board of health expressed the belief that this type of organization was advisable.

CONCLUSIONS

We believe, therefore,

1. That the ideal scheme for proper correlation is for a division of public-

health nursing to be an independent bureau, giving service to each division of the state board of health according to its particular needs, but being maintained as a separate and distinct division of equal rank with other divisions of the state board of health.

2. That the next most satisfactory plan is to combine the public-health nursing division with that of child hygiene, as it is most closely allied to child-welfare activities.

3. To regard public-health nursing as subordinate to any one division of a state board of health precludes the possibilities of its greatest service in securing public-health results, and is least to be desired.

4. That the executive health officer of a state is in best position to judge of the relationship most practicable for his state.

□

Red Cross Health Talks.—For some time the public has been familiar with health movies produced under the auspices of the American Red Cross. A little less than a year ago, the New York County Chapter, American Red Cross, instituted a new service of arranging health talks. This was done through a Health Speakers' Bureau organized in the Health Service Department of the chapter.

At the close of 1921 after 20 months' experience, the Red Cross Health Speakers' Bureau has arranged 665 health talks in Manhattan for 184 organizations, reaching an estimated attendance of 116,200.

The most cordial and unfailing coöperation on the part of the health department and other public-health agencies of the city has made the work of the Red Cross Health Speakers' Bureau possible. The Red Cross offers the service of a highly organized bureau, knowing thoroughly the resources of the public-health agencies in the way of speakers who can give popular talks on health, and being in intimate touch with various groups wishing health talks. The Red Cross service has been to bring these two bodies together —those wishing health talks and those trained to give them in a popular way.

The various groups before which these 665 health talks have been given are as follows:

Thirty-five schools (private, public and parochial) have had 169 talks arranged for them by the Red Cross. Nineteen settlements have had 72 talks. Forty-two churches have had 79 talks. Twenty-nine shops and factories have had 123 talks. Miscellaneous groups such as Y. M. C. A.'s, Y. W. C. A.'s, Y. M. H. A.'s, women's clubs, Rotary clubs, Salvation Army, boy and girl scouts, parent-teacher associations, maternity centers, clinics, day nurseries, health centers, Seaman's Institute, church clubs, etc., have also had talks.

The four most popular subjects for the talks arranged before public school assemblies are nutrition, oral hygiene, personal hygiene, and care of the eyes. There is a constantly increasing demand for talks on food, illustrated with attractive posters and models.

The Bureau is always more interested in planning for a series of four or more talks for each group in preference to a single talk, because of the larger educational value of the series. Of the 665 talks arranged, 542 were in series and only 123 single talks.

This is a new Red Cross service which does not duplicate the work of any other agency, which is offered without fee, and which has infinite possibilites of further development.

THE NEW GARBAGE REDUCTION WORKS AT ROCHESTER, N. Y.

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THE city of Rochester is situated in Monroe county, New York State. It lies in latitude about 43° north and longitude 77° west.

The city is nearly bisected by the Genesee River, which flows through it from south to north. The river has an aggregate descent within the city of about 260 feet. Rochester is bounded on the north by Lake Ontario, and is surrounded otherwise by fertile farms and gardens. Its population and area, and the amount of garbage collected in periods of five years from 1900 to 1920, was as follows:

Year	Population	Area in sq. miles	Garbage, tons
1900	162,608	18.18	.....
1905	181,670	19.16	21,800
1910	218,149	20.42	23,265
1915	248,469	23.72	34,937
1920	295,750	32.64	32,538

The collection and disposal of garbage has been done at the expense of the city since 1880, a part of the time by day labor and the remainder by contract. During nearly all of the period from 1880 to 1900, this work was under the supervision of the Board of Health. In the year 1900, by an amendment to the charter, the collection and disposal of garbage was transferred to the Commissioner of Public Works, and from that date to the year 1907, yearly contracts were made by the Board of Contract and Supply and the garbage disposed of by the contractor for feeding pigs, and as fertilizer for the surrounding towns.

In 1906 the writer made an extensive investigation of the disposal of municipal wastes. He recommended a separation of the ashes and rubbish, and the construction of a suitable plant within the city for the disposal of the wastes in the rubbish by burning. He also recommended a contract for the collection and disposal of garbage for a period of five years, the disposal to be by the reduction process.

The recommendations were adopted by the mayor and the Common Council, and a contract was made with the Genesee Reduction Company for a five-year period, at the end of which another contract was entered into for a similar period.

On January 1, 1917, the city took over the entire plant of the contractor, under the provisions of the contract, at a cost of about $125,000. Prior to this time, the city had constructed an incinerator having a capacity of 100 tons per day, for the burning of rubbish, on grounds adjacent to the garbage plant.

LOCATION OF THE PLANT

When the first contract was let in 1907 it was the intention of the city administration to locate the garbage plant in one of the adjacent towns. The authorities of all the surrounding towns obtained injunctions preventing the city from disposing of garbage within their limits. It was therefore necessary to locate the plant within the city. Numerous sites were suggested, and the location finally fixed upon was on the river flats just across the Genesee River from the gas works. Its location and approaches were the least objectionable that could be found at that time.

The plant, as located, was within 500 feet of one of the main thoroughfares of the city, and nearly in the geographical center. It was therefore necessary that the plant be so operated that it would not create a nuisance. The plant built by the contractor and taken over by the

city was a modification of the Arnold Reduction Process. The process, however, was only carried to the extent of cooking the garbage in digesters by steam, and pressing it in open compressors. The recovery, therefore, of grease and tankage was comparatively small.

During the first period of the five-year contract some complaints arose from residents in the vicinity of the plant, and in the specifications for the second contract a provision was inserted for a water curtain to absorb the gases coming from the plant. While these devices had a psychological effect at the time they were introduced, they were of little value in preventing odors.

The plant, as taken over from the contractor on January 1, 1917, was operated by the Commissioner of Public Works, with no change in the process. The recovery of grease and tankage, as has been said, was exceedingly small, and during the year 1920 amounted to seven-tenths of one per cent of the original garbage in grease, and about nine per cent in very poor tankage.

Immediately after the plant was taken over by the Commissioner of Public Works, it was apparent that an improvement in the conditions was imperative. An extensive investigation of different types of plants, and of methods for the collection and disposal of garbage was made by the Commissioner of Public Works and the writer during the years 1916-1917. The Bureau of Municipal Research also made extensive studies of methods of disposal.

From our previous experience in finding a location for a plant, it was our opinion that the present location should be used for the new plant. Studies were made of plants of the same general type as the one we had, but which continued the process for a more complete recovery of grease and a much better quality of tankage. An inspection of the best type of plants of this kind satisfied us that it would be impossible to operate one in our particular location without great offense.

The question of locating the plant on the sewage disposal grounds at the Lake, some seven or eight miles from our present plant, was considered, and a special investigation of the operation of loading stations in other cities was made by the Commissioner and the writer. This gave us the knowledge that it would be almost as difficult to locate loading stations here, including the approaches, as to locate a plant.

The result of our investigations, as well as the studies of the Bureau of Municipal Research, satisfied us that the plant having the least objections was that known as the "Cobwell System," operated at that time in Los Angeles and in New Bedford. We were not unmindful of the fact that a plant of this kind had been built and discarded in the city of New York, but from a careful study of the reports of the hearings, and from personal statements by those acquainted with the conditions, we were satisfied that the plant in New York was not in all its details properly designed, and was not of sufficient capacity to take care of the garbage offered.

We insisted that our plant should be of sufficient size to take care of all the garbage delivered from day to day, without storage. We, therefore, provided for a normal capacity of 128 tons per day, or 40,000 tons per year, with a peak load of 180 tons per day. The garbage delivered for the year 1920 was, as has been stated, 32,538 tons, or about 102 tons per day.

There is also provision in the plant, as designed, for four additional units, making the total normal capacity of the plant 144 tons per day, and the maximum peak load 200 tons per day.

A description of the plant, taken from the Cobwell specifications, is as follows:

The Cobwell System for garbage disposal has been developed by the Cobwell Corporation, Cleveland, Ohio, and is at present being operated in Los Angeles, California, New Bedford, Massachusetts,

and by the Masek Rendering Company, Cleveland, Ohio. The city of Syracuse, New York, is now installing a plant of this type.

By this process, practically all the work is done in one type of machine, called a reducer. The garbage, as delivered to the plant, is loaded into the reducer, which holds approximately four tons of raw garbage. As soon as the reducer is loaded, it is sealed and the material submerged in a solvent which acts as a dehydrating agent. The mass is then heated by turning steam into the jacket surrounding the reducer tank, so that the steam does not come in direct contact with the garbage. Due to the fact that there is a mixture of solvent and water in the garbage during the dehydrating period, the non-mixable liquids boil at a boiling point lower than the boiling point of water. The low temperature prevents, to a large extent, the breaking down of materials, the temperature being approximately from 200 to 210 degrees Fahrenheit.

After the steam is turned into the jacket, a vertical shaft at the center of the tank, to which are fastened two agitating blades, is set in motion. These blades, revolving on the bottom of the tank, serve the double purpose of keeping the garbage agitated to hasten operation, and later of discharging the finished material. The steam is kept on the jacket during a period sufficient to drive off all the moisture originally in the garbage, in the form of vapor, together with the solvent vapors. The vapors are carried through a pipe line to a closed condenser, where the solvent and water are condensed and then separated by gravity, with the recovered solvent returned to storage for further use. When the water has been entirely eliminated from the garbage, the material has been both digested and dried. The steam is then turned off of the jacket and the solvent removed, carrying with it the grease which was taken up in solution. The digested or dried material is then given additional washes in order to recover all the grease originally contained in the material. After washing, or the drawing off of the grease and solvent, the remaining solvent, which saturates the dry material, is then vaporized and passes off through the vapor lines to the condenser. When the solvent is entirely eliminated, the reducer is opened and the tankage is discharged on to conveyors and conveyed direct to the screening, grinding, and storage room, where it is ready for sale or shipment.

CAPACITY

The capacity of the machinery and equipment will be sufficient for treating normally 128 tons of garbage and dead animals daily, with a capacity for handling up to 180 tons of such material in one day of 24 hours during periods of peak delivery, with all equipment operating.

The following described structures are included in the plant:

1. A receiving building, 35 by 41 feet, houses the unloading platform and storage of, and conveyor for handling the green garbage.
2. A reducer building, 70 by 145 feet, houses the 36 reducers, with room for additional ones, the conveyors for loading the reducers, and conveyors for removing the dry tankage. Galleries in this building contain the motors for operating all machinery.
3. A pump house, 45 by 33 feet, contains the pumps for circulating the solvent and grease, also stills for reclaiming solvent and processing the grease, as well as solvent and water separators.
4. A mill and storage building, 35 by 116 feet, houses the tankage screen and crusher, with storage space for dry tankage.
5. A wash room, 25 by 14 feet, contains toilet room and locker space for the employees.
6. Coolers and condensers with solvent storage tanks are outside but adjacent to the pump house.
7. A conveyor and pipe line for the

shipping of tankage and grease extend to a railroad siding.

A contract for the plant, including the necessary buildings, was awarded to the C. O. Bartlett & Snow Company on January 28, 1920. Additional grading and paving of the grounds, river retaining walls, and a tankage conveyor from the plant to the railroad track of the R. W. & O. Division of the N. Y. C. R. R. will cost about $100,000, making the total cost of the work approximately $750,000.00.

The present equipment of the plant, with the addition of the four extra digesters provided for, will take care of the normal increase of population in the city for the next eight or ten years.

THE VALUE OF COOPERATION BETWEEN THE FOOD MANUFACTURER AND THE FOOD OFFICIAL

JOHN P. STREET, M.S.
Director of Inspection, National Canners' Association, Indianapolis

Address of the Chairman, Food and Drugs Section, Fiftieth Annual Meeting, American Public Health Association, New York City, November 14, 1921.

TO anyone familiar with the activities of both federal and state food departments during the past twenty years, the decline in food adulteration during that period is clearly apparent. Prior to the passage of the Federal Food and Drug Act in 1906, and, in fact, for some years after its passage, in the purchase of many kinds of food products, the purchaser, unless peculiarly alert and well informed, was more than likely to receive sophisticated foods, often containing ingredients actually dangerous to health. To-day such adulterations are rare indeed, and in spite of many technical violations of the laws, food adulteration, in the strict sense of the term, has become a matter of academic interest rather than one vitally affecting the health of our people.

In the good old régime certain manufacturers, more interested in immediate profits than in the quality and integrity of their products, did not always play the game fairly and aboveboard. Unfortunately, this bred in the official mind distrust of manufacturers in general and their methods. In those days, the mere fact that a food manufacturer advocated a certain line of procedure was enough to put the official on his guard, and frequently regulations were put into effect that were over-drastic, ill-advised, and, in some cases incapable of being carried out by the manufacturer without the complete sacrifice of his profits, or a lowering in the quality of his product.

There was a time not so many years ago, when for any food official to indulge in even moderately intimate intercourse with a food manufacturer was indeed a precarious performance, and by so doing, he laid himself open to criticism from trade rivals of the manufacturer in question, as well as from some of his narrow-visioned official confreres. A few officials, conscious of their own integrity and the purity of their motives, were courageous enough to go out into manufacturing plants, study manufacturing processes, and learn first hand the difficulties confronting the manufacturer. These officials soon learned the futility of drawing up rules and regulations based on experience gathered in the office or laboratory, rather than in the factory itself. Gradually, this leaven worked through the whole mass of officialdom until now it is reasonably safe for an official to enjoy quite intimate relations

with manufacturers without harming his official or professional reputation.

These results have been brought about partly by the officials, but also in large measure by the manufacturers themselves. It is common knowledge to all food officials that certain food products, when first offered in our markets, were sold not on their own merits but rather in the guise of a better known product of a similar nature and commanding a higher price. These products, while often possessing high food value and being valuable and economical additions to our dietaries, more and more excited the distrust of the officials and the consuming public, simply because in their early days they were commonly used for adulterants, or because they were sold for something which they were not. In recent years their producers have been spending huge sums of money to gain the public confidence which was lost by shortsighted initial policies. To-day with rare exceptions the manufacturer, introducing a new product on our markets, presents it squarely on its merits, and tries to stimulate a demand for it because of its own virtues and its adaptability to American dietary conditions. Various shortening compounds, the nut margarines, and the skim milk-cocoanut oil compounds are illustrations of new food products that are offered by the manufacturers strictly on their own merits.

Again, certain food manufacturers have learned, sometimes by bitter experience, that they had been using antiquated, rule-of-thumb methods of manufacture, and that the chemist and food official can be of distinct value to them in improving the quality of their product. This is especially true as regards factory sanitation. The improvement in factory sanitary conditions during the past ten years is very impressive to one who has visited the plants and who has learned the infinite pains taken by the high class manufacturer to turn out a product that is clean and wholesome in every respect. This has come in part from an increased popular interest in sanitation, as evidenced by the adoption of sanitary codes in many of our states, and in part from the realization by the manufacturers themselves of its importance. In this connection, it is an interesting sign of the times that certain industries are realizing the necessity of a strict sanitary control in their manufacturing processes, due in part to their appreciation of their obligation to the consumer to produce clean products packed by clean people in a clean factory, and in part due to their conviction that any food producer who is not willing to meet proper sanitary requirements is a detriment to the industry and is entitled to no place in its counsels or trade associations. The National Canners' Association already has taken such a stand, and it is understood that the baking industry contemplates a similar system of self-inspection, so that more and more the consumer will be able to buy prepared foods with the assurance that the manufacturer has done everything in his power to render his product safe and wholesome and worthy of confidence.

From an experience gained both in the ranks of the food officials and as a representative of a great trade organization, I am convinced that certain pitfalls menace the pathway of the unwary official that may lead him unwittingly to adopt lines of action that may bring great injustice to legitimate industries, or that may make him the unconscious tool in a trade controversy.

As already stated, it is not wise or safe for the official, bathed in the academic atmosphere of his office, and often limited in his practical experience by the four walls of that room, to draw up rules and regulations, which, though possibly sound in theory, cannot be carried out without a serious lowering in the quality of the product affected. An illustration of this is the matter of fill. I believe I am safe in stating that

no reputable manufacturer has any desire to foist on the consuming public slack filled containers, and that, with very few exceptions such manufacturers fill their packages as full as is consistent with the mechanical limitations of their filling machines, and with the exigencies of their manufacturing processes. However, to-day there is a bill before Congress requiring that all food packages be filled absolutely full, without any consideration of permissible variation. Should such a bill pass, the production of any food product which requires processing and sterilization after being put into the container, would practically cease, and the public would be deprived of a valuable economical and wholesome source of food supply. Absurd and unreasonable as such a situation may seem, it is nevertheless true that certain food officials and certain official organizations have endorsed this destructive bill without demanding amendments that would maintain its principle of an honest food package, and yet protect legitimate industries.

It is also unfortunately true that legislation is often introduced, ostensibly in the interest of the public, when in reality, its main purpose is to secure an advantage for one branch of industry over a trade rival. It is obviously improper for any food official to endorse such legislation, or do anything to facilitate its passage. Every food department is supported by funds received from the taxation of all the people, and no official has any right to use his influence to encourage regulation that will benefit one class of legitimate manufacturers at the expense of other manufacturers, equally legitimate, and quite as deserving of public confidence and support. These suggestions are, of course, perfectly obvious, and perhaps would scarcely need repetition at this time were it not for the unfortunate fact that at times officials forget that they are food commissioners in the broad sense of the term, and not representatives of a single branch of the great army of food producers.

□

International Journal of Public Health Suspends Publication. — *The International Journal of Public Health,* the publication of which was begun in July, 1920, has proved useful to public-health workers in all of the many countries it has reached, and has helped to make known, in official and professional circles, the peace-time health program of the League of Red Cross Societies, based on the development of strong national Red Cross organizations capable of educating the people in the principles of hygiene and their practical application.

In spite of the expense of publication in several languages, it had been hoped until recently that the *Journal* could be continued until it should establish itself on practically a self-supporting basis. The League, however, has now decided to concentrate its efforts, and consequently its resources, on the promotion of popular health instruction through the agency of the Red Cross. It will continue to publish the *Bulletin of the League of Red Cross Societies,* the scope of which will be somewhat modified in order to devote greater space to scientific information on health matters. It has therefore been decided, though with the greatest regret, to discontinue the *Journal.*

Every possible effort has been made to persuade other international organizations interested in hygiene to undertake or to subsidize this publication, but so far without success. Efforts will be continued in the hope that a periodical which in its eighteen months of existence has won for itself so definite and important a place in the field of international public health, may be resumed under more favorable circumstances and after as short an interruption as possible.

EDITORIAL SECTION

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AN INTERESTING STEP IN CHINA

On the first of last December, preliminary steps were taken for the organization of a National Health Association in China. The organization meeting was held in Shanghai.

The public-health movement in China has for some time been promoted by such organizations as the Council on Health Education, representing five medical, missionary, and Christian associations, and the China Medical Board of the Rockefeller Foundation has likewise been active in establishing a great central medical school.

Now, however, there is to be a National Health Association, which has a most ambitious and well-conceived program, embracing five major activities:

The first is a "health museum." By this, apparently, is meant a traveling health exhibit, illustrating the nature, scope, methods, and significance of public health.

Then there is to be a local health demonstration, somewhat of the type of the tuberculosis demonstration at Framingham, Mass., and the child health demonstration at Mansfield, Ohio. A single city is to be selected for the installation of a modern health department, which will give actual proof that with proper methods the death-rate in China can be reduced.

Third, there will be research and information activities. At first thought it seems strange that a nation should feel the need of public-health research, when it has scarcely made a beginning in applying what is already known. It must be borne in mind, however, that the climatic and social conditions in China create problems that are not always successfully met by Western methods.

It is also proposed to establish what is called a "health brigade," a sort of flying squadron which will respond to emergency calls for the suppression of epidemics.

Finally, efforts will be concentrated on educating the young in the principles of health. In a country where the majority of adults are illiterate and fettered by "can'ts" and "don'ts," the obvious method of education is through the child.

It should be a source of pride to America that the leader in this movement is a Chinese who was educated for public health in American schools, namely, Dr. S. M. Woo, a co-worker of Dr. W. W. Peter, the American secretary of the Council on Health Education of China.

The American Public Health Association wishes these public-health workers in China the best of success in their great undertaking.



LIFE SAVING OR PUBLIC HEALTH?

Editor's Note.—The following statement by a man of broad executive experience in non-official health agencies is published by the JOURNAL in the hope of stimulating discussion and thought among health workers as to the proper functions of health administration. While disclaiming responsibility for its implications, the JOURNAL feels that it embodies a point of view that should not be forgotten.

To the public-health official the development of his administrative machinery may appear to be an end in itself. To the layman, or at least to the man who foots the bill, life-saving and the prevention of sickness will probably appear more fundamental. This distinction is vital. Unless it is kept in mind, an overdevelopment of means—of one of the means, public-health work—may lead to the discomfiture of the general program of life-saving.

This situation is undoubtedly, to a degree, responsible for the fundamental difference in point of view of the average doctor and the average public-health officer. The doctor, being at all times close to sickness of all kinds, senses his importance in any program of life-saving. Doctors outnumber public-health officers more than 100 to 1. They are close to the patient, and his recovery or demise, whether he suffers from a communicable disease or from some other ailment, depends very largely upon the quality of service he receives from the doctor. It is well known that only a fraction of all deaths, a little less than 10 per cent, are due to communicable diseases, and that the public-health officer may claim decisive influence only in case of a minor part of even this ten per cent.

The wise health officer undoubtedly appreciates the fact that the efficiency of his own work depends very largely upon the efficiency of the average doctor as well as upon an intelligent and responsible attitude of the public toward public-health functions. It would seem important for the health officer to guard against an overdevelopment of health functions. This is apt to be followed by increased

cost of work with decreased results. A balance must at all times be aimed at in the life-saving program. An overdevelopment of public-health functions which upsets this balance may seriously interfere with progress towards a lower death-rate and a lower sickness rate. SANTÉ.

THE NEW CONSTITUTION OF THE A. P. H. A.

In this issue we print the revision of the Constitution and By-Laws of the American Public Health Association which was adopted as amended at the Fiftieth Annual Meeting.

Following are some of the more important changes that were made:

The name of the Board of Directors was changed to "Governing Council," and the name of the Executive Committee was changed to "Executive Board." The change was made mainly for legal reasons, in order to permit the smaller body to transact such business as the signing of the leases, handling of funds of the Association, and transacting other strictly business matters, leaving it to the larger body to establish policies of the Association.

The number of elective members of the Governing Council was increased from 15 to 45. On the other hand, the provision was dropped whereby ex-presidents of the Association automatically became members of this governing body. It was felt that the new arrangement would insure more democratic control in Association policies.

In order to insure a reasonable influx of new blood into the Governing Council, elective councilors, after two consecutive terms of office, were made ineligible for reëlection during one Association year.

The power to amend the Constitution was transferred from the Governing Council to the membership of the Association, with the proviso that the amendment should first receive the approval of the Governing Council.

The policy of the Association with regard to publications, finance, and committees, has been incorporated into the Constitution.

In the By-laws dues have been established for affiliated societies.

A new type of membership has been established, namely, fellowships. Only those who have been in the Association for five years are eligible to election as fellows by the Governing Council.

The relation of the sections to each other, and to the Association as a whole, has been specified, and the Governing Council has been empowered to create, discontinue, and to regulate sections.

The February issue of the NEWS LETTER has been omitted, but publication will be resumed during the progress of the membership campaign, which begins this month. For reasons of economy the Executive Board of the Association has adopted a policy of publishing the NEWS LETTER only when occasion demands.

CONSTITUTION AND BY-LAWS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

AS ADOPTED BY THE BOARD OF DIRECTORS, NOVEMBER 14, 1921, NEW YORK CITY

ARTICLE I

Name

The name of this Association, incorporated under the laws of Massachusetts, is the American Public Health Association.

ARTICLE II

Object

The object of this Association is to protect and promote public and personal health.

ARTICLE III

Governing Council

A. Composition: There shall be a Governing Council consisting of:

1. The officers of the Association.

2. Forty-five members of the Council, to be elected, with due regard to geographical and membership considerations, by and from the membership of the Association for three year terms, one-third retiring each year.*

3. A representative designated by each Section to serve for two years.

4. Each affiliated society shall have the right to designate one of its members to serve for one year on the Governing Council.

B. Terms: Terms of Councilors shall begin at the end of the annual meeting when elected, and shall terminate at the end of the annual meeting at expiration of term, provided that Councilors shall have the right to attend meetings of the Council in an advisory capacity as soon as elected.

C. Reëlection: After two consecutive terms an elective Councilor shall be ineligible for reëlection to the Council during one Association year.

D. Officers: The officers of the Association shall be the officers of the Council.

E. Functions: The functions of the Council shall be:

1. To establish policies for the Association and for the guidance of the Executive Board and the officers.

2. To establish Sections of the Association and to maintain coördination among them.

3. To submit to the vote of the Association all resolutions which have received the approval of the Governing Council.

4. To elect affiliated societies, fellows and honorary fellows as provided in the By-laws.

5. To elect the Executive Board and the officers of the Association.

6. To receive from the President, on behalf of the Executive Board a report on the meetings, policies and work of the Executive Board, a report from the Executive Secretary concerning the administrative work of the year, and a report from the Treasurer concerning the finances of the Association.

F. Quorum: A quorum of the Council shall consist of ten Councilors.

ARTICLE IV

Officers

The officers of this Association shall be a President, three Vice-Presidents, an Executive Secretary, and a Treasurer. The officers shall be nominated and elected by written ballot of the Governing Council. Officers shall serve from the close of the annual meeting when elected, until the close of the next annual meeting, and until their successors are elected and qualified. A majority vote of the Councilors voting shall be required to elect, and if no candidate receives a majority vote on the first ballot, the candidate receiving the smallest number of votes shall be dropped after each ballot in succession until a majority vote is obtained.

*By special action of the Board of Directors, fifteen members were elected at the Fiftieth Annual Meeting to serve for 1 year, fifteen for 2 years and fifteen for 3 years.

ARTICLE V

AMENDMENTS

This Constitution may be amended by a two-thirds vote of the members of the Association present and voting at an annual meeting, provided that the specific amendment to be acted upon is published in the official publication of the Association not less than thirty days prior to the meeting, and provided further that the amendment has received the approval of the Governing Council.

BY-LAWS

ARTICLE I

MEMBERSHIP AND DUES

A. There shall be six classes of members who may be elected from the countries now represented in the Association and such other countries as may be admitted. The respective appellations, qualifications for election, and dues shall be as follows:

1. Members: Interest in health conservation. Dues $5.00 per year.

2. Sustaining members: Interest in health conservation. Dues $25.00 per year.

3. Affiliated societies: Promotion, as a society, of the objects of the Association. Dues $1.00 per $1,000 of annual budget appropriation, the maximum dues per society being $100.00 and the minimum dues $10.00 per year.

4. Corporate members: Interest in health conservation. Dues not less than $50.00 per year.

5. Fellows: Active work in the conservation of public health and previous membership in the Association for five years. Dues $5.00 per year.

6. Honorary fellows: Distinguished service to public health. No dues.

B. Affiliated societies: The election of members, corporate members and sustaining members shall be by a membership committee appointed by the Executive Board. Election of fellows, honorary fellows and affiliated societies shall be by the Governing Council upon recommendation of the Membership Committee. All such elections shall be by secret ballot, and three-fourths of the votes cast shall be requisite to election.

C. Dues are payable annually in advance. All members and fellows paying dues shall receive the AMERICAN JOURNAL OF PUBLIC HEALTH and such other publications as may be designated by the Executive Board, which shall determine the proportion of dues to be devoted to this purpose.

D. The right to one vote shall be vested in each of the six types of members enumerated in Section A, Article I, of the By-laws.

ARTICLE II

EXECUTIVE BOARD

A. Composition: There shall be an Executive Board of nine members elected by the Governing Council, six of whom shall be members of the Governing Council, and three of whom shall be the President, Executive Secretary and Treasurer.

B. Terms: The terms of the officers as Executive Board members shall be one year each, and the terms of the other members shall be two years each, expiring in rotation, three each year. These terms shall begin at the end of the annual meeting at which elected, and shall continue until the end of the annual meeting at expiration of term, provided that newly elected members of the Board shall have the right to attend meetings as soon as elected, and shall have no vote until installed.

C. Reëlection: After two consecutive terms a member of the Executive Board shall be ineligible for reëlection during one Association year. This provision shall not apply to an officer of the Association.

D. Officers: The officers of the Association shall be the officers of the Executive Board.

E. Duties: The duties of the Executive Board shall be:

1. To direct the administrative work of the Association.

2. To act as trustee of its properties.

3. To procure funds and to authorize budgets for the Association work.

4. In general to carry out the policies of the Governing Council between meetings of the latter.

F. Quorum: A quorum of the Executive Board shall consist of four members.

ARTICLE III

MEETINGS OF THE ASSOCIATION

There shall be at least one annual meeting of the Association, held at a place to be selected by the Governing Council. Special meetings of the Association may be called by a majority vote of the Governing Council, the Executive Board, or the Association.

ARTICLE IV

SECTIONS

The Governing Council shall have power to create or discontinue Sections of the Association. Sections shall elect their own officers. They shall conduct sessions in coöperation with and under the supervision of the Executive Board. The Governing Council may establish regulations of Sections to each other and to the Association. The Constitution and By-laws of Sections and amendments thereto shall be submitted for the approval of the Governing Council, and shall be valid only after such approval.

ARTICLE V

PUBLICATIONS

All publications of the Association and of its Sections shall be issued under the direction of the Executive Board. The Executive Board shall appoint a Managing Editor of the official journal, who may also be the Executive Secretary of the Association. The Executive Secretary shall, with the approval of the Executive Board, appoint an Advisory Editorial Board of not less than five members, to serve at the pleasure of the Executive Board. All papers and reports for the annual meetings are to be accepted with the understanding that they shall be the property of the Association for publication, except as specifically released by the Advisory Editorial Board.

ARTICLE VI

FINANCES

The Executive Secretary shall receive and deposit to the account of the Treasurer all remittances sent to the Association. The Treasurer shall be custodian of investments of the Association and shall disburse funds in accordance with duly authorized vouchers. With the approval of the Executive Board he may establish a drawing account for the Executive Secretary. The Executive Secretary shall send each month to members of the Executive Board a financial summary of receipts and disbursements. Once each month, or oftener if called for, he shall also forward to the Treasurer and President an itemized statement of all expenditures. The Executive Secretary and the Treasurer shall be bonded at the expense of the Association in an amount to be determined by the Executive Board. The books of the Association shall be audited annually by certified public accountants, to be appointed by the Executive Board.

ARTICLE VII

COMMITTEES

Committees of the Association shall be authorized by the Governing Council or by the Executive Board. The President shall appoint the members of such committees. Such appointments shall expire at the next annual meeting, unless otherwise specified.

ARTICLE VIII

AMENDMENTS

These By-laws may be amended by a majority vote of the total membership of the Governing Council during the annual meeting, provided that twenty-four hours prior written notice thereof has been given. The By-laws may further be amended by two-thirds vote of those voting at any meeting of the Governing Council called for the purpose, provided that notice thereof shall have been given at least fifteen days prior to such meeting.

ASSOCIATION NEWS

LIST OF NEW MEMBERS

Proposed for Election to the A. P. H. A. January 1 to January 31, inclusive.
Names of Sponsors are set in **Bold Face Type.**
Names of New Members are set in Light Face Type.

CONNECTICUT

Mr. P. E. Bransfield, Portland, Conn.
Miss M. Louise Butler, 25 Wall St., New Haven, Conn., Serologist, full time.

MARYLAND

Miss Rosa E. Prigoson, Baltimore, Md.
Miss Charlotte C. Van Winkle, 733 North Broadway, Baltimore, Md.

MISSOURI

Dr. Noah Adams, Kansas City, Mo.
Mr. John M. Baptiste, 401 Delaware St., Kansas City, Mo., Manager of United Chemical Companies.

NEW JERSEY

Mr. Kenneth M. Gould, New York, N. Y.
John J. Szymanski, M. D., 125 Second St., Passaic, N. J., Physician. Part time health activities.

NEW YORK

Charles Krumweide, Jr., M. D., Bronxville, N. Y.
Mr. Clarence V. Ekroth, 461 Eighth Ave., New York, N. Y., Director Ekroth Laboratories.

PENNSYLVANIA

Mr. Kenneth M. Gould, New York, N. Y.
Carey J. Vaux, M. D., City County Building, Pittsburgh, Penna., Director, Dept. of Public Health.

TENNESSEE

Dr. McKiver Woody, Memphis, Tenn.
Mr. C. L. Isley, Jr., Dept. of Health, Memphis, Tenn.

VERMONT

Mrs. E. H. Harvey, Brookline, Mass.
Mary Barbara Dee, B. S., Fairfax, Vermont, Teacher.

VIRGINIA

Mr. Lonsdale J. Roper, Portsmouth, Va.
Mr. William F. Lawrence, 518 Middle St., Portsmouth, Va., City bacteriologist, full time.

WASHINGTON

Dr. John Weinzirl, University of Washington.
Miss Dorothea Taylor, 410 11th Avenue North, Seattle, Wash.

AUSTRALIA

Prof. James O. Jordan, Boston, Mass.
Mr. Henry A. Ward, Wellington, New Zealand, General Manager, Wellington City Milk Dept.

PORTO RICO

Mr. Etienne Totti, San Juan, Porto Rico.
Jose Lugo-Vina, M. D., P. O. B. 52, San Juan, Porto Rico, Secretary of Insular Board of Health.

SOUTH AMERICA

Mr. A. W. Hedrich, New York, N. Y.
Dr. Miguel A. Villavisencio, Av. Arica 234 Lima, Peru, Director Marine Hospital Callao.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 10th of each month for publication on the 20th. Mail to New York office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in New York City. In replying give age, professional training, salary requirements, previous positions held and three or more references.

United States Civil Service Examinations are announced for bacteriologist, associate bacteriologist, assistant bacteriologist, junior bacteriologist, surgeon's assistant (dental, eye, ear, nose, throat), roentgenologist, associate roentgenologist, assistant roentgenologist, and junior roentgenologist. Applications will be rated as received until March 31, 1922.

Applicants should at once apply for Form 1,312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Customhouse, Boston, Mass.; New York, N. Y.; New Orleans, La.; Honolulu, Hawaii; Post Office, Philadelphia, Pa.; Atlanta, Ga.; Cincinnati, O.; Chicago, Ill., St. Paul, Minn.; Seattle, Wash.; San Francisco, Calif.; Denver, Colo.; Old Customhouse, St. Louis, Mo.; Administration Building, Balboa Heights, Canal Zone, or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R.

Wanted: A full-time operator for a dental clinic, conducted by the health department, situated in an industrial city of 40,000 inhabitants. Children mostly in attendance. Salary $1,800.00 to $2,000.00. Apply to Perth Amboy Board of Health, Perth Amboy, New Jersey.

Wanted: Competent physician to take position as full-time county health officer in Middle Western state. Salary for first year, $3,000 and expenses. Address P. T. 476, care of this JOURNAL, New York address.

Wanted: Bacteriologist to apply for city service examination for assistant director of bacteriological laboratory of the City Department of Health of Baltimore, Md. Must have training equivalent to graduation with a degree of A. B. or D. P. H., with degree of M. D. not necessary but preferred. Must have special training in sanitary bacteriology, including a special knowledge of the bacteriology of milk and food products. Salary $2,500 per year. For further particulars apply to Commissioner of Health, 311 Courtland St., Baltimore, Md.

POSITIONS WANTED

Positions wanted announcements will be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 10th of the month.

Wanted: Position in field of child hygiene. University as well as medical graduate. Long experience in health work; two and one-half years in child hygiene. At present director division of Child Hygiene, State Board of Health. Available within next few months. Address 199, care this JOURNAL, New York address.

Wanted: Bacteriologist and laboratory technician desires position as city bacteriologist, or with association of physicians. Young man, single, college graduate, B. S. in chemistry. Thoroughly trained and experienced in all phases of clinic and public-health laboratory work. At present assistant city bacteriologist of large city. Available April 1. South preferred, but will go anywhere. Salary $200 a month. References. Address A. W. 202, care this JOURNAL, New York address.

BOOKS AND REPORTS REVIEWED

Food Products, Their Source, Chemistry, and Use. *E. H. S. Bailey. Philadelphia: P. Blakiston's Son & Co.,* 1921. *Second Revised Edition, with 92 illustrations. Pp. 529. Price,* $2.50 net.

The first edition of this book appeared in 1914. The present edition is enlarged by some thirty-odd pages, the new material introduced representing the more recent advances in the science of nutrition and in the art of food manufacture. In the new edition there have been added brief discussions of such subjects as vitamines, bread made from mixed flour, and peanut products. Some additional tabular matter has also been added, such as statistical matter on the production of different cereals in the United States, and the composition of proprietary foods. The chapters on animal and vegetable fats and oils, and nuts and cereals have been revised, for it is the trade in these products that the world war has peculiarly affected. The actual additions to the volume are greater than the slight increase in size would indicate for the reason that the treatment of such subjects as the alcoholic beverages has been shortened. A number of new illustrations have also been added.

The book is a very useful discussion, not too technical in character, of the kinds and varieties of foods in use the world over, of the sources from which they are derived, and the manner in which they are prepared. The book is singularly free from serious errors. It presents to the intelligent reader, unequipped with much technical information, a comprehensive and intelligible picture of foods and the food industries. While the book contains a certain amount of information concerning curious foods that are little used in this country, it does furnish the information which any well

educated person might be expected to acquire concerning foods and their production. It is, therefore, to be recommended as a text for courses in colleges and high schools that are designed to teach this subject in an elementary and not too technical manner.

CARL L. ALSBERG, M.D.

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Public Health Surveys: *What They Are; How to Make Them; How to Use Them. Murray P. Horwood, M.S., Ph. D., Instructor, Department of Biology and Public Health, Massachusetts Institute of Technology, with a Foreword by William T. Sedgwick and an Introduction by George C. Whipple. New York: John Wiley & Sons,* 1921, 12 *mo. Pp.* 403. *Flexible leather cover. Price,* $5.00.

Dr. Horwood, already well known to readers of the AMERICAN JOURNAL OF PUBLIC HEALTH, has put all public-health workers in his debt by bringing together, for the first time, in one of Wiley's convenient manuals, information that should be in the hands of every one who attempts to conduct a public-health survey. If, after this book has been read, a few amateur sanitary surveyors are scared off from the complex task, it will have done good work. If, further, it stimulates health officials and prospective health workers to thorough and painstaking preparation, both formal and practical, for survey work, or to a recognition of the outside expert, it will have done a still greater service. For the really experienced health surveyors of the first rank in this country can be counted on the fingers of both hands. This is perhaps not strange when we consider the youth of the movement. The earliest date found in Dr. Horwood's comprehensive bibliography, or in that of the *Cleveland Health and Hospital Survey* (Part 11) for a survey strictly of the general health, is 1911. In the ensuing ten years a considerable literature, a technique, and not a little professional activity (frequently under the auspices of endowed foundations) have grown up. The time is ripe for such a book as this. The author's own experience is adequate, though intensive, the largest city he has surveyed being Oklahoma City, and it is from the urban communities of Oklahoma that he draws most of his material.

The book is elementary, and intentionally so. It is written to reach the widest possible audience. In thus translating into words of one syllable and insuring that no possible point is omitted, the author occasionally falls into the habit of dogmatizing on minor administrative details. It might be well to recognize that there may be more than one satisfactory way of handling these problems in a rapidly developing art. But this fault, if it can be called one, is unimportant in the ensemble.

The method of the manual is briefly to discuss under each main division the desirable conditions, so far as they are generally agreed upon or standardized; to list, under an exhaustive outline, the questions which should be asked by the investigator to secure a cross-section of health conditions; and to give blank forms, tables, score-cards, etc., for recording such facts as may be most conveniently cast in statistical form. Many other aids to the reader who runs are introduced, such as bold-faced side-heads, recapitulatory outlines at the end of chapters, etc., after the fashion of text-books.

The first three chapters are devoted to general material about the survey, the organization of the community, and certain basic methods which have been found useful. Then follow in order chapters devoted to the following topics: The Community, Water Supply, Drainage, Sewerage, and Sewage Disposal, Collection and Disposal of Refuse, Milk Supply, Inspection of Restaurants, Lunch Rooms and Food Stores, Housing, School Sanitation, School Hygiene, Organization and Activities of the Health Department, Hospital Facilities, Tuberculosis, Vital Statistics, Analysis of the City Budget. The remaining chapters tie up the several strands in a consideration of the complete report, recommendations from standard health surveys, methods of putting the survey results to work, and their value to the health campaign in general.

It is impossible in the space at our command to speak critically of the contents of the main chapters. No space is provided for the subject of mental hygiene in a general survey of the public "health." But the pioneer book in this field deserves hearty credit, despite such questions of emphasis. Suffice it to say that the book will soon be an indispensable tool of all professional health experts.

K. M. G.

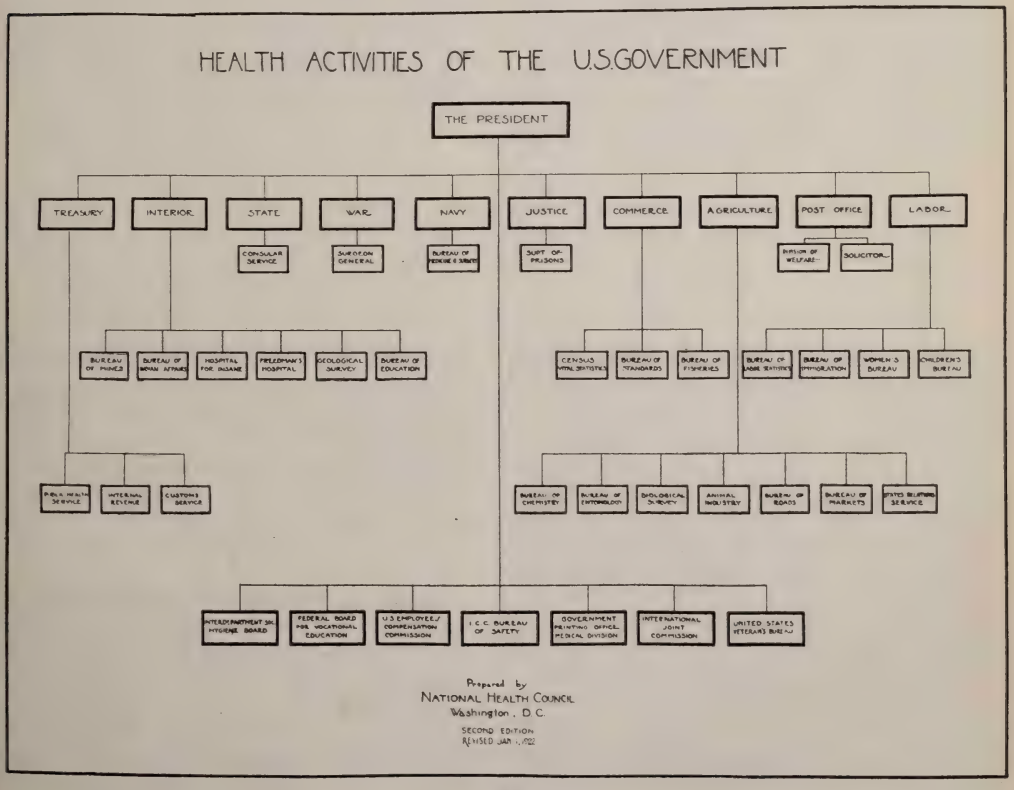
THE HEALTH ACTIVITIES OF THE UNITED STATES GOVERNMENT

IN each of the ten federal departments of the government, there are bureaus which conduct some type of health activity. In all, there are thirty-six divisions of the government which are concerned, directly or indirectly, with some phase of public health. The most prominent health agency of the government is, obviously, the Public Health Service. For some incongruous reason, this bureau is in the Treasury Department. The Public Health Service receives the largest appropriation and has the largest personnel of any of the bureaus interested in health. The seven divisions of this bureau include: scientific research, marine hospitals and relief, domestic quarantine, foreign and insular quarantine, personnel and accounts, sanitary reports and statistics, and venereal diseases. In the Treasury Department also the Bureau of Internal Revenue enforces the anti-narcotic and prohibition laws and the tax on child labor, and coöperates with the Department of Agriculture in enforcing the Food and Drugs Act and meat inspection laws.

Bureaus in the Department of Labor engaged in health effort are the Children's Bureau, the Women's Bureau, which considers the health of women in industry, the Bureau of Labor Statistics, which studies industrial hygiene, and the Bureau of Immigration, charged with the health of immigrants and the exclusion of diseased persons from the country.

In the Department of Commerce is the Division of Vital Statistics of the Bureau of the Census, which conducts the bookkeeping of public health. Also in this department is the Bureau of Standards, which has issued safety standards, and the Bureau of Fisheries.

The Department of the Interior has several bureaus dealing with health. The Bureau of Education, the Bureau of Indian



Affairs, the Bureau of Mines, and the Geological Survey are all interested in the matters of public health.

In the Department of Agriculture the Bureau of Chemistry conducts the analytical work under the Pure Food and Drugs Act, and the Bureau of Animal Industry copes with animal diseases, many of which affect man. The Bureau of Entomology studies insects influencing the health of man and the Bureau of Biological Survey attempts to eradicate the rat and the plague-carrying ground squirrel. The Bureau of Roads has designed sanitary conveniences for farms and the Bureau of Markets inspects food products. The States Relations Service has a corps of home demonstration agents who instruct persons in home economics, sanitation, health, and hygiene.

In order to complete the Cabinet departments there may be mentioned the War and Navy Departments, each of which has a medical division, the Department of Justice, whose superintendent of prisons is responsible for the health of federal prisoners, and the Post Office Department, whose solicitor prosecutes fraudulent advertising of so-called health remedies through the mails, and whose director of welfare looks after the health of postal employees.

Besides the departments under Cabinet officers there are seven independent departments interested in some aspect of health conservation. The Interdepartmental Social Hygiene Board works to diminish the venereal diseases, the United States Veterans' Bureau cares for the mentally and physically disabled ex-soldier, the Federal Board of Vocational Education is engaged in rehabilitation, the Employees' Compensation Commission provides medical and surgical treatment for injured government employees, the Interstate Commerce Commission has a Bureau of Safety, the International Joint Commission endeavors to prevent pollution of our boundary waters, and the Government Printing Office has a medical division.

While it may seem that there is much duplication in the government's health work, this duplication is more apparent than real. The public reached by the various agencies is generally different. Furthermore, there is so much to be done that it would seem that there is room for all these efforts. A certain amount of coördination is, however, essential. It is quite possible that the plans for federal reorganization as developed by the Smoot-Reavis Committee may include a scheme for closer correlation of the health activities of the government.

J. A. T.

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United States Bureau of Mines Issues Reports.—The following named Reports of Investigations of the United States Bureau of Mines have recently been issued:

Serial 2298—Lignite Carbonization—Carbonized Residue Briquets.—By W. W. Odell.

Serial 2299—A Fatal Quarry Accident from Falling Rock.—By Oliver Bowles.

Serial 2300—Underground Loading Devices in Metal Mines.—By C. Lorimer Colburn.

Serial 2301—Destructive Distillation of Mixtures of Oil and Coal.—By Joseph D. Davis, Palmer B. Place, and G. S. Scott.

Serial 2302—Inspection and Assembly of Flame Safety Lamps at the Mine.—By L. C. Ilsley.

Serial 2303—Methane in California Gold Mines.—By Byron O. Pickard and E. D. Gardner.

Serial 2304—The Treatment of Carbon Monoxide Poisoning.—By R. R. Sayers and H. R. O'Brien.

Serial 2305—Recent Articles on Petroleum and Allied Substances.—By E. H. Burroughs.

Copies of any of these reports may be obtained by writing the Director, Bureau of Mines, Washington, D. C.

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A. M. A. Meeting.—The Committee on Hotels of the American Medical Association urges that reservation for the meeting at St. Louis, May 22-26, be made as early as possible. Reservation should be made by communicating direct with hotels. If satisfactory arrangements cannot be made in this way, write to Dr. Louis H. Behrens, 3525 Pine street, St. Louis, Mo.

PUBLIC HEALTH NOTES

Abstracts by D. Greene, M. D., James A. Tobey and Homer N. Calver.

A Committee for the Protection of Animal Experimentation. — For years there have flourished (more or less) in this country, societies devoted to anti-vivisection. Usually these organizations have also been opposed to vaccination, to modern medicine and to sanitary science generally. It is indeed refreshing to learn that there has recently been formed a Committee for the Protection of Animal Experimentation. This Committee has headquarters at 234 Berkeley Street, Boston, and was created late in 1921. It is fostered by a group of naturalists, and two pamphlets which have been issued to date bear the names of the following distinguished persons in this field: Thomas Barbour, John C. Phillips, Ernest Harold Baynes, Edward Wigglesworth.

The first statement of the Committee, dated December 1, 1921, quotes largely from the book on "Animal Experimentation and Medical Progress," by W. Keen, M. D. The second statement, dated January, 1922, outlines some reasons why dogs are necessary in the laboratory and gives excerpts from the organ of the Anti-Vivisection Society, *The Open Door*. In contrast to the insipid material from this banal magazine, it presents letters and statements from many distinguished scientists and civic leaders. The Committee also distributes reprints of the excellent article entitled "The Truth About Vivisection," by Ernest Harold Baynes, which appeared in the *Woman's Home Companion* for July, 1921, and an article entitled, "More About Vivisection," by Ernest Harold Baynes, which appeared in the November, 1921, issue of the *Woman's Home Companion*.

While up to the present the activities of the anti-vivisection group have never attained any particular influence, the propaganda is nevertheless a nuisance. Some people are likely to be influenced from hypersensitiveness to so-called cruelty to animals, and it is most beneficial to have an organization, the aim of which is to give out accurate and fair information concerning a necessary branch of science. Public-health workers in particular will welcome the entry of the Committee for the Protection of Animal Experimentation as an asset in their own field. (J. A. T.)

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Problems of American Malaria Control.— In abstracting an article entitled, "Requirements of the Different Species of Anopheles in Regard to the Abode of Their Larvae," by two Dutch authors, Assistant Surgeon General H. R. Carter tells us that the article brings out facts that (1) the different species of anopheles are not equally efficient in nature as vectors of malaria; (2) they have not the same classes of breeding places. He then deduces that the practical application of these two postulates is to determine if malaria can be sufficiently controlled by the breeding places of certain species only, letting those of other species alone. The article in question concerns malaria in the Dutch East Indies, but Dr. Carter states that the problem has an analogy in the United States. The three principal types of anopheles moquitoes, the *A. punctipennis, the A. quadrimaculatus,* and the *A. crucians,* are not equally efficient as carriers of malaria and they have to a great extent, different classes of breeding places. Dr. Carter states that the problem of *A. punctipennis* is as follows: (1) Is *A. punctipennis* in nature so inefficient a vector that we can afford to confine our malaria campaign to the other two? (2) Are its breeding places so specific that by so doing we will avoid a very considerable amount of work necessary to control the production of this species alone?

Work on this problem was begun in 1915, and Dr. Carter hopes that the men in the field will make and note such observations at present bearing on it, as it is among the most important of the field problems now awaiting solution.—*Public Health Engineering Abstracts,* U. S. P. H. S. Jan. 7, 1922. (J. A. T.)

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Annual Report of the American Red Cross for 1921.—The annual report of the American National Red Cross for the year ended June 1, 1921, outlines among other

things the health work done by that organization. In the foreword, Dr. Livingston Farrand, who served as chairman of the Central Committee, states that the central idea and purpose of the Red Cross peacetime program is one of health protection and health education of individuals, families and communities. Scientific but common sense and practical doctrines of physical well-being are taken by these agencies into the schoolhouse, the home and the community center. The program is flexible, designed for ready and frictionless adaptation to varying conditions in varying communities, coöperative with public-health and other institutional agencies, supplementary where such other agencies exist, preparative for their establishment where they do not exist. In the body of the report it is stated by E. A. Peterson, director of Health Service, that virtually all of the services of the American Red Cross engaged in some form of health work. At the close of the fiscal year, 251 chapters had taken up health center work, as against 126 during the previous year. The Red Cross participated in the support, either wholly or in part, of 402 health centers. First aid is reported by E. R. Hunter as enrolling over 80,000 students during the year. Miss E. G. Fox states under Public Health Nursing that there were 1,267 Red Cross public-health nurses on July 1, 1921. The majority of these nurses were engaged in county-wide work. Under Nutrition Service, Miss Margaret Sawyer states that there were 1,114 nutrition classes conducted with an enrollment of 22,096 children. Much health work is also set forth in the report of foreign operations. Child health units were established in several countries. (J. A. T.)

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United States Naval Medical Bulletin Now a Monthly.—Volume 16 of the *United States Naval Medical Bulletin* is now being issued as a monthly instead of a quarterly as in the past. The magazine contains many articles of interest to public health as well as to medicine and surgery. The *Notes on Preventive Medicine for Medical Officers* has been merged with the *Bulletin* for reasons of economy. The January, 1922, number reproduces the report of the committee of the American Public Health Association on the standardization of regulations for the control of communicable diseases. (J. A. T.)

Public Health in South America.—In the *Bulletin* of the Pan-American Union for January, 1922, there are many items concerning public health, in the news section. An Anti-Cancer League has been formed in Argentina; tuberculosis dispensaries have been equipped in Santiago, Chile, and during last September gave attention to 599 patients; Ecuador opened a day nursery at Guayaquil in October and a society for the protection of children has been started in Ibarra; in Panama, a clinic started in Colon by the Christobal Women's Club is caring for about two thousand cases a month and has handled over five thousand since it began operations in June; Peru has a Society for the Protection of Infancy, and the mayor of Lima has issued orders that milk dealers shall be licensed, the applicants for such licenses being required to show health certificates.

Under the Republic of Central America, we are told there are child-health stations in Guatemala City, while in San Salvador a free milk station and various health centers have been started. There are also venereal clinics and medical consultation offices in the latter state. Vaccination has been urged by the government of the Dominican Republic and by the Salvadorian Department of Sanitation. It is stated that in Venezuela, great interest has been awakened in public sanitation. A complete plan for the sanitation of Caracas was outlined in a recent number of the *Ingenieria Internacionale* and is abstracted in the *Pan-American Bulletin*. Costa Rica reports that twenty-five young women this year took the examinations for sanitary assistants in the schools. (J. A. T.)

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France's New Minister of Hygiene.—"The new Minister of Hygiene, M. Paul Strauss, is a rather moderate Republican who made his debut in politics in the furor of the Nationalist movement in 1900 as a member of the Municipal Council of Paris. A little later he was elected Senator from the Department of the Seine. By profession he is a journalist and is President of the Association of Republican Journalists. For a long time he has discussed questions of public health in the press, particularly in the *Figaro*.—*New York Times*, January 16, 1922. (J. A. T.)

Bureau of Hygiene in Greece.—A reorganization of the Greek Ministry of Public Assistance is being considered, to incorporate into this Ministry, among other things, a bureau of hygiene and a bureau charged with the care and protection of infants and small children. The work of these bureaus, as at present planned, will be largely of a preventive and educational nature. School nursing and a clinic to which mothers may bring their infants for examination and advice have already been established in Greece. These activities which have been in the hands of charitable organizations, the American Red Cross being especially efficient, are now to be taken over by the Ministry of Public Assistance.

School physicians report that one-third of the pupils in the schools are affected with trachoma, and in some schools every child is suffering from this disease. (Official statement from the American Consul, Athens.)—*Weekly News Letter,* U. S. Children's Bureau, January 14 and 21, 1922. (J. A. T.)

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New England City and Town Milk Council.—A New England City and Town Milk Council has been formed to improve the quality of the milk and cream sold in the cities and towns by coöperating in eliminating undesirable conditions. Membership is confined to health department representatives of localities receiving milk and cream from sources outside of their own jurisdiction. The following minimum requirements have been adopted for processing plants, receiving stations and distributing plants:

1. Milk shall not be processed in any room or building which is not provided with tight, smooth walls, floors, and ceilings, to be of such construction as will allow easy and thorough cleaning.
2. Milk plants shall be free from flies and vermin.
3. Water supply shall be sanitary and sufficient.
4. All sewage and waste products shall be cared for in a sanitary manner.
5. Sufficient and convenient toilets and wash bowls shall be provided for employees.
6. Boilers shall be separated from the processing portion of the plant.
7. Equipment shall be of proper construction and shall be installed in a sanitary manner.
8. Shafting, pulleys, cold water piping, or other obstructions shall not be placed over milk processing equipment.
9. Pasteurization shall be efficient. Pasteurizers shall be equipped with automatic recording temperature devices, and charts therefrom shall be preserved and accessible to health officers.
10. Coolers shall be separately inclosed or otherwise protected.
11. Weighing cans, pre-heaters, receiving and holding vats shall be covered.
12. Milk as received from producers shall be clean, and the temperature shall not be above 50 degrees Fahrenheit.—*Monthly Bulletin,* Boston City Health Department, Vol. 10, No. 5, November, 1921, p. 105-7. (J. A. T.)

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Sterilization of Throats of Diphtheria Carriers with Ultraviolet Rays.—Over 40 chronic nose and throat diphtheria carriers were treated by ultraviolet radiation with the Kromayer lamp. All parts of the tonsil are exposed directly for from 3 to 5 minutes, so that but one to three applications are necessary to completely cover each tonsil. The rays are applied through a hollow metal tube, one-half inch by six inches long and so slanted to fit directly over the tonsil. In 50 per cent of the cases one treatment was enough to sterilize, while 4 cases required 3 exposures, but none required more than that. If the cultures remained positive the raying was repeated with a 4 to 6 minute exposure.—L. C. Donnelly, *Mich. State Med. Soc. Jour.,* July, 1921, 356; *Amer. Rev. of Tuberculosis,* Dec., 1921, 198. (D. G.)

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Housing vs. Food as Factors in Increased Incidence of Tuberculosis.—In order to ascertain whether the marked increase in incidence of pulmonary tuberculosis in Rostock (a city of 70,000 inhabitants) was due to poor housing or to inadequate food conditions following in the wake of the war, 356 clinic cases of active pulmonary tuberculosis were studied. Their living quarters were classified according to the following standards: number of rooms, lighting, air, cleanliness and number of occupants; whether they contained a kitchen and at least one heatable room; and whether the patient alone occupied the bed. The living

quarters of these patients were classed as "good" according to the above-mentioned standards in 66.6 per cent; as "moderately good" in 16 per cent; as "poor" in 16.3 per cent; and as "very poor" in 1.1 per cent. The author does not consider these figures as being sufficiently bad to lay the blame for the increased rate incidence of phthisis upon housing conditions, but by a process of exclusion thinks it due rather to the well known decrease in quantity and quality of food, especially animal proteins, carbohydrates and fats.—W. Tobias, *Ztschr. f. Tuberkul.*, April 20, 1920; *Amer. Rev. of Tuberculosis*, Dec., 1921. (D. G.)

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The Swimming Bath and Catarrhal Otitis.—Dr. K. Amersbach, director of the University clinic for diseases of the ear, nose, and throat at Freiburg in Breisgau, remarks that though swimming-bath conjunctivitis was described as long ago as 1899, no connection has hitherto been suspected between this condition and disease of the ear. Recently, however, during an outbreak of swimming-bath conjunctivitis at Freiburg, numerous cases of catarrh of the Eustachian tube were seen at the out-patient department of the clinic. The patients chiefly belonged to a swimming club, and most of them were also suffering from conjunctivitis. The most striking feature about the tubal catarrh was its obstinate character and tendency to relapse. In almost all the cases the ear trouble developed about a fortnight after the onset of the conjunctivitis. The patients complained of a feeling of pressure in the ear, tinnitus of varying degree, autophony, and more or less impairment of hearing.

Dr. Amersbach seems to have been discouraged from making any bacteriological examination by the fact that investigations of the kind undertaken by ophthalmologists on swimming-bath conjunctivitis had been inconclusive. He suggests that the involvement of the Eustachian tubes in swimming-bath tubal catarrh may occur in one of two ways—namely, either by infected lacrymal secretion reaching the tubes as the result of blowing the nose or swallowing, or directly by infection of the pharynx by the bath water. The affection is most frequent in young persons, but older individuals are not immune, as three of the cases were over 36 years of age. Treatment consisted in the application of the usual methods for dealing with catarrh of the Eustachian tubes.—*Deut. Med. Wchnschr.*, Aug. 4, 1921; *Lancet*, Sept. 3, 1921. (D. G.)

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Celebration of Centenary of Pasteur.—The one hundredth anniversary of the birth of Pasteur will be celebrated, fittingly, by a great health exposition at Strasbourg, where he began his teaching career, from May to October, 1923. Plans for the big "Exposition Interalliée d'Hygiène" are already well forward. The prime movers of the undertaking are the city and University of Strasbourg and the Pasteur Institute of Paris under whose auspices the exposition is to be arranged and carried on. The list of patrons includes the president of the French Republic, M. Millerand; M. Loubet, president of the administrative council of the Pasteur Institute; M. Poincaré, president of the Society of Friends of the University of Strasbourg and member of the administrative council of the Pasteur Institute; and M. Leredu, Minister of Health and Public Welfare.

Scientific societies all over the world are expected to send representatives to the opening day of the exposition, when a statue of Pasteur is to be unveiled in University Place, Strasbourg, in the presence of the Pasteur family, the famous man's most noted pupil and collaborator, Dr. Emile Roux, director of the Institute, who is honorary president of the Exposition, and many of the leaders in medicine and public-health work in Europe and America.—*Social Hygiene Bulletin*, Dec., 1921. (D. G.)

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Tuberculosis Increasing Among Adolescent Girls.—Figures compiled by the Metropolitan Life Insurance Company which relate to the ten year period 1911 to 1920, show that despite the decline in the mortality from tuberculosis which has taken place during the last decade, the disease is actually increasing among girls between the ages of fifteen and twenty years. Adolescent girls constitute the only group in which the tuberculosis death rate has not declined.

The company's compilations, published in the December issue of the *Statistical Bulletin*, show that during the six year period 1911 to 1916, the average annual death-rate from tuberculosis among white girls, aged

fifteen to nineteen years and insured in its Industrial Department, was 144.5 in 100,000; by 1919, this rate had increased slightly (to 145.8), and in 1920 it rose further to 151.5. These increases, it is true, are small; ordinarily, they would not be commented upon. They become very important and significant, however, by virtue of the strong contrast which they present to the trend of tuberculosis mortality among both females and males of other age groups. For example, women from twenty to twenty-four years had an average death-rate from tuberculosis of 238.0 in 100,000 during the six year period 1911 to 1916; by 1919, this had decreased to 228.4; in 1920, there was a further and very substantial drop to 213.8. For insured white women aged twenty-five to thirty-four years a death-rate of 252.2 was recorded for the six year period 1911-1916; by 1919, the figure had declined to 214.3 and in 1920 there was a further drop to 190.5.

During the same time that the tuberculosis death-rate of adolescent white girls was increasing five per cent, the mortality among adolescent white boys was decreasing twenty-five per cent.—*Statistical Bulletin*, Dec., 1921. (D. G.)

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Cleveland Sewage Treatment Plan.—Cleveland is one of a half dozen or so of our large cities that have embarked upon a comprehensive plan of main drainage and sewage disposal, the particular occasion being the protection of her water supply and bathing beaches. The article referred to describes in brief the three treatment plants to be installed after a series of investigations begun in 1913 and costing $150,000. The two largest of these, the westerly and easterly plants, which are located on the lake shore, will be constructed first, with capacities of 36 and 92 m.g.d. respectively. Treatment will ultimately be the same, consisting of coarse screens, grit chambers, Imhoff tanks and chlorination. Screenings will be consumed in an incinerator.

The article describes in some detail the somewhat novel grit chamber for the westerly plant. This is designed to secure velocities that will leave less than 15 per cent putrescible matter in the grit, or from one-half to 1 ft. per second. This is accomplished by passing the dry weather flow through a central channel which during storms overflows in succession to several parallel channels on each side. The latter are each provided with bottoms sloping to two grit sumps. The elements of design used for the Imhoff tanks are also given in detail, as well as the methods of construction employed in the construction of this plant, all of which indicate careful design and superintendence by the chief engineer, Department of Public Service, Mr. Robert Hoffman, and the sanitary engineer, Mr. Geo. B. Gascoigne.—*Public Works*, Sept. 3, 1921. (K. A.)

✣

Lights and Shadows of the Activated Sludge Process.—In this paper Mr. Eddy has given a clear and comprehensive review of the essential features of this most modern development of sewage treatment. Complete success in its use depends on so many factors that it is a somewhat complicated problem and yet experience seems to indicate no insuperable difficulty in securing excellent results provided the plant has reasonably good supervision and is well designed and provided, further, that a well considered program for operation is followed.

Mr. Eddy emphasizes the need for efficient activation or regeneration of the sludge by biological agencies, by which organic matter may be oxidized and the floc coagulated, thus permitting high concentration of the sludge—under favorable conditions to 2, or even 3 per cent solids. Air supply is therefore of prime importance. Air is employed both for agitation and activation, the volume required increasing with the strength and the age of the sewage. As but 5 per cent of that used is ordinarily effective there would appear to be possibilities in developing new economies in the process of air supply, possibly by surface agitation as carried out by Mr. Haworth at Sheffield; but the paper deals generally with the method of diffusion in most general use. Overaëration, we are told, should be avoided, as actually detrimental.

Re-aëration of the sludge is considered of doubtful value, but for each plant the seasonal demands for purity of effluent, and the proper retention for the sewage (depending largely in the colloidal content and the temperature) should be carefully considered. Ordinarily tanks should provide for about 6 hours' retention. An excessive capacity, besides increasing plant costs, produces an in-

ferior result through the tendency to septicization.

"Perhaps the darkest spot in the entire process of activated sludge treatment is that of sludge dewatering." Mr. Eddy can speak with authority here from his close association with the exhaustive experiments in this line at Milwaukee. Pressing is practicable but difficult and costly. The centrifuge is a more compact and automatic device but fails to remove much finely-divided matter. "At present the hope of improving the method of dewatering appears to lie in the direction of conditioning the sludge rather than improvement of mechanical appliances." By adequate aëration and the use of sulphuric acid the sludge is freed of its moisture with greater ease and at moderate cost, ordinarily perhaps about $2.70 per mil. gal. of sewage.

If this problem of dewatering activated sludge can be satisfactorily solved the process, combining the advantages of an excellent effluent and an inoffensive sludge rich in nitrogen, would receive a fresh impetus.—Harrison P. Eddy, *Public Works,* Aug. 6 and 13, 1921. (K. A.)

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The Physical Examination of Well Persons.—Some points to be emphasized and mistakes to be avoided by lectures at Public Health Institutes have been outlined by Eugene Lyman Fisk, M. D., medical director for the Life Extension Institute.

POINTS TO EMPHASIZE IN A SINGLE LECTURE

1. The aim of this work is remedial, protective and constructive.

2. These ends require that the work be planned as a thorough survey of the family and personal history and the body of the individual.

3. It is important that there be a clear understanding of the general physical state of the population.

4. The general physical state of the population has been disclosed by sickness surveys, examinations in industry, for military service, etc.

5. The statistics available from the above sources show that the average individual is an impaired individual and that the work of any organization attempting the examination of supposedly well people will consist in searching for and recording accurately the impairments which are shown in the average civilized person.

6. It must be recognized that disease, old age and death are due to definite physical causes, as heredity, poisons, food excess, etc. It is the purpose of these examinations to search for these causes and correct them or protect the individual against them.

7. Examinations must be made as thorough and systematic as the conditions under which they are conducted will permit.

8. It is possible with properly trained men to make such a survey in a very practical and valuable form without the aid of specialists. It is wise, however, to have special examination of the eye, ear, nose and throat.

9. Many of the diagnostic tests appropriate for the various regions of the body are simple. The technique and significance of the reactions can be readily acquired by a well-grounded generally trained man. This limits the need for specialists except in borderline and obscure cases.

10. If this work is to be made universally available, the ground work must be done by the generally trained man, as there are not enough highly qualified specialists to satisfy the needs, if they are used as a matter of routine in all cases.

11. With all the data in hand available from the family and personal record of the individual and the physical survey and laboratory reports, the results should be interpreted by some one trained in this special work. A program should be outlined that will involve the correction of remediable defects, supervision and mitigation of non-remediable defects, and instruction in hygiene for the upbuilding of the body.

12. It is all-important that individuals be classified as to their mortality and morbidity plane and counselled as to moving on to higher planes. Adequate prepared literature must be furnished in connection with these examinations, in addition to verbal or written counsel.

MISTAKES TO AVOID

1. The examinations must not be conducted from the ordinary clinical standpoint of merely seeking to diagnose a disease.

2. Loose terminology, vague and indefinite methods of technique must be avoided. The examination must be conducted with accuracy, extending the scope of the diag-

nostic methods in borderline and obscure cases.

3. The message based on these examinations must always be a hopeful one. The individual must be informed that practically every civilized individual shows impairment and that recognition of these impairments points the way to improved health.

4. Do not over-emphasize any particular form of defect or fault in hygiene. Every defect and fault in hygiene should be presented in proper balance.

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Water Softening and Purification at Columbus.—Columbus, Ohio, is one of the comparatively few cities that soften their water supplies, and probably the only one that uses phosphoric acid in connection with it. The city obtains its water supply from Scioto River, which is dammed about five miles above Columbus. This water is very hard, is very muddy at times, and receives sewage pollution, also.

In 1904 the typhoid death-rate was 139 per 100,000. In 1905 work on the filtration plant was started. By filtration the number of bacteria was greatly reduced and the typhoid death-rate for 1920 was 2.5 per 100,000. Turbidity was kept continuously at zero.

For softening the water, lime and soda ash are used, with alum as a coagulant. The normal carbonates present in the lime-softened water form incrustations on the sand grains on the filters. Owing to this incrustation, the sand had increased in effective size from 0.42 mm. to more than 1.0 mm.

Experiments and investigations were made toward working out a practical method of eliminating these difficulties. One method suggested for producing a lime-softened water that was stable was to carbonate the water with CO_2. A number of ways of doing this were tried but proved unsatisfactory. By carbonating the water the normal carbonates were put in solution and there was no reduction in hardness. Experiments were conducted to determine the advisability of neutralizing the normal carbonates with sulphuric acid, with silicic acid, boric acid, oxalic acid, tartaric acid and phosphoric acid. The final conclusion arrived at was that, as a finishing treatment for lime-softened water, phosphoric acid was the best and most economical treatment tried. By the process used, half of the carbonates are removed, thus reducing the hardness of the water; the balance of the carbonates are carbonated, thus producing a water that is stable.

In coagulating muddy water, better results are obtained with coagulants when the water is treated with enough lime to soften it and an additional amount is added, sufficient to give the water a caustic alkalinity. This caustic alkalinity must be neutralized before the water is filtered and phosphoric acid can be used for this purpose also.—*Public Works,* August 13, 1921.

✠

Soil and Water Pollution.—The question of the area over which dangerous pollution may spread from some focal point, as a pit, or open privy, or broken sewer, is an important one from the viewpoint of health. Its importance grows with the increasing density of population.

In determining the danger area, two factors must be considered—surface pollution and sub-surface pollution. At first glance the former may seem to lack the importance of the latter, but it is safe to say that a large part of the disease caused by bad wells and springs is due to surface pollution. However, it must not be concluded that underground travel of pathogenic bacteria is the exception to the rule. Experiments have shown that dangerous pollution often travels for considerable distances with underground waters.

During the past few years research has been carried on by several bodies with the purpose of determining the limit of travel of pollution from privies, septic tanks and sewers. A thorough investigation was recently concluded by Dr. Israel J. Kligler of the Rockefeller Institute. The report of this work has been summarized by the Alabama State Board of Health. To quote in part:

"The following facts were established:

"1. The typhoid and dysentery bacilli succumb rapidly on exposure to an unnatural environment.

"2. The spread of pollution from a focal point is limited in scope.

"3. Pollution in wells is usually surface in origin.

"The main conclusion arrived at on the basis of both the experimental and field observation was that in moderately compact

clay and sand-clay, or sandy soil, free from cracks, the possibility of sub-soil pollution of the ground water is negligible, provided the ground water level is more than ten feet below the polluted area."

The writer agrees with this conclusion, but adds the qualifying statement that the ten feet of soil below the polluted area is a safeguard only if there is no excess of water to carry the bacteria rapidly through the soil.

It seems clear that the type of soil and the depth of the water table are highly important factors in determining the pollution area. It seems, also, that the borderline cases of high water table and unfavorable soil conditions should be considered dangerous, and that types of sewage disposal liable to pollute the ground water should be avoided as much as possible. In the matter of water supplies, shallow wells drawing from ground waters exposed to such pollution should also be avoided, or, at least, kept under close scrutiny.—W. A. Hardenbergh, *Public Works,* December 31, 1921.

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Public Health Work in the Philippines.—The Rockefeller Foundation announces that the International Health Board has accepted an invitation to coöperate in carrying out the general scheme of reorganization of the public-health activities of the Philippine Islands, which was recently made public by the president of the Senate, Manuel Queson.

The participation of the Board will consist in lending the services of certain members of its staff for a limited period and providing specialists as consultants and assistants to Philippine government officials in various lines of public-health work. The broad program which the government has adopted for improving health conditions includes the ultimate consolidation of all health functions in a single department of health to correspond with the ministry of health in other countries.

Among the persons whose services will be furnished by the Rockefeller Foundation is an assistant to the dean of the College of Medicine and Surgery of the University of the Philippines, who will assist in developing the medical school and will give particular attention to the problem of providing post-graduate instruction in public health, so that the health workers so urgently needed in the Philippine Islands may be trained locally.

Fellowships for advanced study in the United States will be offered by the Board to exceptionally promising and well-qualified young Filipinos, to fit them for the more important administrative and technical positions in the public-health service and for positions as instructors in the College of Medicine and Surgery and as teachers of nursing. Existing facilities for the training of nurses are said to be inadequate to meet the demand for hospital and private service. The nursing situation will therefore be studied and special attention given to training women in public-health nursing.

An assistant will be provided for the director of the Bureau of Science, who will be expected to advise in the further development of that bureau. The biological laboratory, which is one department of the Bureau of Science, is to be expanded in order to serve as the central public-health laboratory of the Philippines, with local laboratories in the provinces.

Dr. Victor G. Heiser, director for the East of the International Health Board, and formerly director of health for the Philippine Islands, went to Manila in February to assist in carrying out the program.—*Science,* January 6, 1922, Vol. lv, No. 1410.

✣

Determining and Treating Carbon Monoxide Poisoning.—In order to make accurate observations for determining and treating carbon monoxide poisoning among those employed in mines, metallurgical plants, and tunnels, a number of investigations are being conducted at the Pittsburgh Experiment Station of the United States Bureau of Mines.

Methods of collecting and preserving blood from persons affected or overcome by carbon monoxide have been investigated and developed.

The following methods of analysis of blood in the presence of carbon monoxide have been studied by Bureau of Mines investigators: Haldane's picrocarmin method, tannic acid method, spectrophotometric method, and the Van Slyke gasometric method. The Haldane picrocarmin method proved to be the least desirable, being very inaccurate with low concentrations; the tannic acid method was accurate but tedious; the spectrophotometric method was accurate and

rapid, but required expensive apparatus; the Van Slyke method was the most dependable, but it required a comparatively large sample, 2 to 4 c.c., for each determination.

A study of the feasibility of using in first-aid work a mixture of carbon dioxide and oxygen, for resuscitation of persons overcome by carbon monoxide, was conducted on both dogs and men. Results indicated that in its present state of development the method is not feasible for use by first-aid men.

In the conduct of the above investigations a superior method for the selection of analysts for color work in chemistry was developed, which, it is believed, can be applied to advantage in any laboratory requiring careful colorimetric determinations.

Also the solubility of carbon monoxide in serum and plasma was determined, the amount of carbon monoxide dissolved in the serum proving to have little effect upon the accuracy of colorimetric determinations. The figures for the solubility of carbon monoxide in serum have also a purely scientific value in the calculation of carbon dioxide in serum and the determination of the hydrogen in concentration.

In addition to these studies on carbon monoxide, work has been done on the problem of the elimination of carbon monoxide from the blood after a dangerous degree of asphyxia. It has been determined that ventilation of the lungs could be increased from 300 to 400 per cent by adding 6 to 10 per cent of carbon dioxide to pure oxygen. These investigations have also shown that the effects of carbon monoxide upon the heart are not specific, but are secondary to general asphyxia and a terminal failure of respiration.

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LEGISLATION—FEDERAL

From the bi-weekly report of the National Health Council, December 20, 1921-January 16, 1922.

PROGRESS ON MATTERS PREVIOUSLY CONSIDERED

A. 1. The United States Public Health Service. (a) New bill for reorganization. (b) Civilian status for reserve officers.

a. H. R. 9775. Introduced by Mr. Newton, January 6, 1922. Referred to the Committee on Interstate and Foreign Commerce. This is the second bill to reorganize and promote the efficiency of the U. S. Public Health Service, the other (H. R. 9291) having been outlined in Statements No. 13, p. 5, and No. 17, p. 5 (A. J. P. H., December, 1921; February 1922). This bill, like the other, would transfer not to exceed 550 officers of the reserve corps, including 50 dental surgeons and 50 scientists other than medical officers, to the regular corps. It expressly states that officers shall be entitled to promotions, retirement privileges, and the same pay, allowances, and increases as officers of corresponding grade in the Army Medical Department. No officer shall be transferred to the regular service in any grade above assistant surgeon unless he has had a total of three years' satisfactory service in the Army, Navy, Marine Corps, Coast Guard, Coast and Geodetic Survey or Public Health Service, part of which must have been between April 6, 1917, and November 11, 1918. Promotions shall be by examination. Seven professors of the hygienic laboratory are provided by the bill, but they are to be appointed by the President with the consent of the Senate and are exempt from the provisions of the bill. No corps of nurses, dietitians or reconstruction aids are provided in this bill, as they are in the Dyer bill (H. R. 9291).

b. Civilian status for reserve officers.

Since much agitation has recently been caused by a rumor that the pay of reserve officers of the Public Health Service was to be reduced, we will give an outline of this situation, although no legislation directly to this effect has been introduced. While government officials are reticent in giving out information about this matter and refer to it as "confidential," the facts are, nevertheless, as follows:

Some time ago the United States Bureau of Efficiency made a recommendation that, in the interests of economy, all reserve officers of the Public Health Service be placed on a civilian basis. The effect of such a procedure, if consummated, would have been to cut off commutation privileges and cause a diminution in compensation of such officers. The matter was laid before the Assistant Secretary of the Treasury, who has charge of the Public Health Service. It was also referred to General Sawyer, president of the Board of Hospitalization. No final action had been taken, but reserve officers

and others, having learned of the recommendation, began to oppose it. Telegrams from all over the country poured into the White House and messages of protest were received by the thousands by members of Congress. They came not only from Public Health Service officers, but from disabled soldiers in hospitals, voluntary health agencies, and from members of the medical profession in private practice. The outcome of this general protest resulted in an announcement from the White House that the recommendation would not be adopted and that the reserve corps of the U. S. Public Health Service would be held intact. Surgeon General Cumming of the U. S. Public Health Service opposed the proposed change on the ground that it would demoralize the commissioned personnel of the service and would make it impossible to continue the present care and treatment of disabled soldiers.

On January 7, 1922, Senator Smoot, a member of the Committee on Reorganization of the Departments of the Government, declared that he was strongly in favor of the recommendation of the Efficiency Bureau to change the reserve officers of the U. S. Public Health Service to a civilian status. He stated that the transfer of these reserve officers to a civilian status would have no effect in reducing their pay, their allowances or their commutation of quarters. Neither would it take them out of the present hospitals where they are treating former service men. The only effect, Senator Smoot declared, was to take away from them the retirement privileges which they now hold and to which they are not entitled. He said that although they were reserve officers they now enjoy the same retirement privileges as regular army and naval officers, having been given these privileges by an executive order without legislation by Congress. Senator Smoot blamed the U. S. Public Health Service for obtaining this "illegal" retirement privilege for its reserve officers (and also nurses) and charged that the Service was attempting to "loot the Treasury."

H. R. 9724. Treasury Appropriation Bill for 1922-23. Introduced by Representative Madden, January 4, 1922. Passed the House of Representatives, January 5, 1922. Referred to the Committee on Finance in the Senate. Without a record vote, the Appropriation Bill for the Treasury Department passed the House of Representatives on January 5, 1922, after it had been introduced in that body the day before by Chairman Madden of the Appropriations Committee. This is the first bill prepared under the new budget system. The measure carried several large appropriations of interest to public health, consisting of the funds necessary for the operation of the U. S. Public Health Service, maintenance of quarantine stations, prevention of epidemics, and hospital construction. A summary of these follows:

a. Office of Surgeon General	$ 92,970
b. Pay, etc., of commissioned medical officers	913,560
c. Pay of acting assistant surgeons	300,000
d. Pay of other employees	840,000
e. Freight, transportation and traveling expenses	50,000
f. Maintenance of hygienic laboratory	45,000
g. For medical examinations, surgical, medical and hospital services for the beneficiaries of the U. S. Public Health Service, other than patients of the U. S. Veterans' Bureau, including all other expenses incident thereto	5,627,394
h. For operation of quarantine service	739,000
i. Prevention of epidemics	400,000
j. Field investigations of diseases and conditions influencing their propagation and spread.	300,000
k. Interstate quarantine service	25,000
l. Rural sanitation	50,000
m. Biologic products and regulation of sale of all serums, viruses, toxins, etc	50,000
n. Maintenance and expense of Division of Venereal Diseases, of which sum $225,000 shall be allotted to various states for coöperative work	400,000
Total for Public Health Service	$9,832,924

Hospital Construction

a. For repair work at Public Health Hospital No. 60, Oteen, North Carolina	$100,000
b. For miscellaneous repair work, Public Health Hospital No. 42, at Perrysville, Md.	150,000
c. For painting and plumbing at Public Health Hospital No. 44, West Roxbury, Mass.	50,000
d. For remodeling and repairs at Public Health Hospital No. 24, Palo Alto, California	50,000

Quarantine Stations

a. For water tank on tower and watering system at Port Townsend, Washington, Quarantine Stations in addition to $14,000 already appropriated..... 25,000

There is no appropriation in this bill for continuing the Interdepartmental Social Hygiene Board.

H. R. 8928. Government Salary Reclassification; Nurses and Inspectors. This measure, known as the Lehlback Bill, is now before the Senate Committee on Civil Service, having passed the House on December 15, 1921. In Statement No. 17, page 7 (A. J. P. H., January), we discussed the bill in general, outlining the eight groups into which all civilian employees of the government would be placed, and analyzed the various grades under the professional group, which embraced most of the persons engaged in public-health work.

Nurses are not included in the professional group in the bill, but are placed in the institutional service group. This service is stated to include "all classes of positions the duties of which are to perform or supervise nonprofessional work incident to the care, treatment, and well-being of inmates of hospitals, charitable, correctional or other government institutions." Seven grades are set forth. The first includes all those who receive instruction and do routine nursing work prerequisite to qualifying as registered nurses. Annual rates of compensation are $180, $240, and $300 with maintenance. The second grade includes those who move patients, clean rooms, scrub floors, and act as hospital orderlies. The third includes assistants in routine nursing and housekeeping. The fourth is general supervision over a group of patients or employees of the lower grades. Grade five comprises the graduate nurses and those in charge of housekeeping. Compensation is $900, $960, and $1020 with maintenance and $1320, $1380, $1440, or $1500 without maintenance. The sixth grade includes supervisors with salaries from $1080 to $1200 with maintenance, and $1620 to $1860 without. Finally, grade seven is the superintendent or director of nurses, who would receive from $1740 to $2100 with maintenance, and from $2580 to $2940 without such maintenance.

Since nurses are classed in the bill with charwomen and housekeepers, an effort is being made by representatives of the nursing associations to have the bill amended so as to give the nurses a professional status.

The inspectional service in the bill has six grades, which includes under grade two those who inspect sanitary conditions where food is prepared or sold, collection of refuse, and general sanitary inspection. Salaries range from $1500 to $1680 per annum in this grade. Grade three, in which salaries are from $1800 to $2040, also includes sanitary inspectors similar to grade two, but of greater skill and with more responsibility. Inspectors in the interests of accident prevention are added to this grade. Grade four embraces those who direct the District of Columbia regulations relating to sanitation, and those who direct or assist in enforcing regulations regarding contagious diseases or vital statistics. Here, salaries are from $2200 to $2940. Grade five seems to have no specific provisions relating to public-health workers, nor does grade six or grade one.

NEW LEGISLATION

(MATTERS NOT PREVIOUSLY CONSIDERED)

H. R. 5680. Free Postal Privileges for Literature of State Health Departments. Introduced by Mr. Clark, May 3, 1921. Referred to the Committee on Post Office and Post Roads. In checking up the health bills before Congress we recently came across this one, which has been inadvertently omitted from any of our previous reports. As far as we know, this is the only bill relating to public health that we have missed since last April.

This measure would make it lawful to transmit through the mail, free of postage, any printed letters, circulars, documents, pamphlets, and literature relating to public health which shall be issued by any state or territorial board of health. Such material must bear the words "Public health business" and the name of the board of health. The unlawful use of such franking privilege would be punished according to existing postal laws.

No action has as yet been taken on this bill.

H. Res. 258; H. Res. 259. Investigation of Narcotic Addiction in the United States. Introduced by Representative Volk, January 4, 1922. Referred to the Committee on Rules. The first resolution provides for the appointment of a select committee of fifteen

members of the House, including all physicians who are members of that body, for the purpose of investigating into the subject of drug addiction in the country, the method of handling these unfortunates, the treatment practiced by private physicians, institutions and sanitariums, the effectiveness of the present laws and regulations to control trafficking in narcotic drugs, and for the purpose of drafting new legislation. The preamble of this resolution alleges:

1. Competent medical and administrative authorities estimate that between one million and two million persons are victims of narcotic drug addiction.
2. This condition has been complicated and aggravated by enforcement of the Harrison narcotic law by the federal government and by many of the rulings and regulations, and also by variation in state laws.
3. Many of the rulings of the federal government, states and municipal laws are contrary to existing medical bibliography, clinical and pathological research in handling addict patients, and dangerous results have befallen victims.
4. These rules and regulations and state laws have made it impossible for the medical profession to treat narcotic drug addicts without fear of arrest, indictment or prosecution by the criminal authorities.
5. These facts have caused an increase in smuggling, peddling and illegal distribution of drugs and also have brought about a virtual monopoly in the treatment of narcotic addict patients by privately owned sanitaria promoting certain routine formulas and cures without regard to the individual physical phenomena.

The second resolution authorizes the Secretary of the Treasury to transmit to the House of Representatives the facts in his possession with reference to the rules and regulations for the treatment of narcotic drug addiction permissible under the Harrison law, as recently issued by R. A. Haynes, prohibition commissioner. The resolution questions the right of the federal government to place a curb on the medical profession in its treatment of drug addicts by these regulations, and questions the ability of the prohibition commissioner to direct medication, as well as the qualification of his agents and inspectors to pass on the judgment or opinion of private practitioners of the medical profession.

The resolution also asks the Treasury Department for information regarding the allegation that narcotic addicts have been denied the advice and the right to undergo treatment by their family physicians under the rules and regulations. The names of the person or persons writing various sections of these rules and regulations governing the treatment of addicts and issued by Prohibition Commissioner Haynes, are asked for by the terms of the resolution. The authority for the publication of a resolution quoted from the Council on Health and Public Instruction of the American Medical Association, fixing thirty days as the length of time which shall not be exceeded in treating drug addiction, is also asked for, and the status of that resolution in the main body of the American Medical Association is requested.

H. J. Res. 247. International Conference to Control Pollution of Harbors. Introduced by Congressman Hicks of New York, January 3, 1922. Referred to the Committee on Foreign Affairs. This resolution authorizes and requests the President to call an international conference of maritime nations to consider entering into an agreement to control the pollution of navigable streams of the world. Such pollution is now increased by oil-burning and oil-carrying vessels through the dumping into the ocean of oil waste, fuel oil, oil sludge, oil slop, tar residue and other water ballast impregnated with oil.

HISTORY OF A BILL IN CONGRESS

In order that persons interested in national health legislation may be familiar with Congressional procedure with regard to bills introduced, we are including this outline of the history of a bill.

In General

Congress is established by Article I of the Federal Constitution and its powers enumerated therein. While the framers of our government intended that the Senate should represent the states and the House of Representatives the people, they gave to each branch equal powers of legislation. No bill can become a law without the assent of both the House and the Senate. Bills may originate in either branch, except that measures for raising revenue must have origin in the House. Frequently, identical bills are introduced simultaneously in both houses. Sometimes a bill is suggested or drafted by a citizen and given to a member of Congress to present. Any member may introduce a bill in his own name. Both houses have legislative drafting services which attempt to set forth bills in accepted legislative phraseology.

In the Senate

The Senate consists of ninety-six members, two from each state. A senator who desires to introduce a bill must rise, be recognized by the Vice-President, who presides over the Senate, and announce that he wishes to introduce a bill. It is then deposited beside the Vice-President's desk, later read by a clerk and referred to the proper committee. There are thirty-four committees of the Senate. The bill is considered by the committee, which holds public hearings. The committee may then do one of four things: (1) Report the bill favorably as it stands, (2) report it favorably with amendments, (3) report it unfavorably, (4) take no action at all. The number of bills introduced in Congress is legion. In the Special Session of the Sixty-Seventh Congress from April to November, 1921, comprising about six months of actual work, approximately 13,000 bills and resolutions were introduced in both branches. Only 108 of these became laws. Many of them never got out of committee. Usually this means that the bill has no chance of passage, but once in a while a motion is made that a committee be discharged from consideration of the bill, with the result that the bill is brought directly before the Senate.

When a bill is reported, it then goes upon the calendar. Under certain conditions, as where a bill is of especial importance, it may be called up out of order, but this is rare. When the measure does come up, it is open to debate. There is no time limit in the Senate. Amendments may be offered on the floor. After debate, the amendments and then the bill are voted on by calling for the ayes and nays, or by *viva voce* vote. If it passes, it is sent to the House for concurrence.

In the House

There are 435 members of the House of Representatives. The procedure in dealing with bills originally brought up in the House is, in general, similar to that of the Senate. There are a few differences, however. The member introducing the bill simply drops it in a basket beside the Speaker's desk. It is referred to one of the sixty House committees, and goes through the same course as in the Senate. There are three calendars in the House, the union calendar, relating to revenue, appropriations, and public property; the House calendar, carrying other public bills; and the private calendar, consisting of private bills. When the bill comes up, the House forms the Committee of the Whole House. Time for debate is limited. Amendments may be offered from the floor. The amendments and the bill are finally voted on by *viva voce* vote, rising vote, taking the vote by tellers, or recording the ayes and nays, according to the demand of the House. If the bill is passed, it goes to the Senate for concurrence.

Bills Passed by One Branch Before the Other

When a bill which has already passed one branch of Congress is laid before the other, it may be passed as it is, amended and passed, left in committee or rejected. If passed, it goes to the President. If amended, it goes back to the original branch for concurrence in the amendments. This may be done at once. If there is disagreement, each chamber appoints three members to form a conference committee to meet and settle the differences. The report is laid before each house, which may adopt it or disagree. Conferences are again held and this process is continued until both Senate and House have agreed on the measure. It then goes to the President, as an enrolled bill.

Before the President

The President has ten days, exclusive of Sundays and holidays, in which to take action. If he signs the bill, or fails to sign it within that period, the bill becomes a law and is known as an Act. The Act is sent to the Secretary of State to be numbered and filed as the original copy of the law. He, in turn, forwards copy to the public printer to be printed for public use. The President may veto the bill, in which case it goes back to Congress with a written statement of his objections. Congress may, however, pass the bill over his veto by a two-thirds majority in each branch.

From the foregoing description it will be seen that a bill introduced in Congress has a long and hazardous career before it becomes a law. The general laws of the United States have been collected in one volume of 1262 pages, which it is proposed that Congress issue in codified form. A bill to this effect (H. R. 12) has passed the House but not the Senate.

LEGISLATION—STATE

With this issue, the JOURNAL begins the publication of abstracts of current state health legislation, which are being collected and published in bi-weekly *Bulletins* by the U. S. Public Health Service with the coöperation of the National Health Council. These *Bulletins* represent the first systematic attempt in the history of public health to issue in collected form, abstracts of current state health legislation. Further information about this service can be obtained from the National Health Council, 411 Eighteenth St., Washington, D. C.

The abstracts are necessarily very brief. Persons interested in seeing complete copies of the bills mentioned are referred to the Secretaries of State in the respective states.

General

The States and the Maternity Act. The U. S. Children's Bureau has announced that five state legislatures have accepted the provisions of the act for the promotion of the welfare and hygiene of maternity and infancy. They are: Delaware, Minnesota, New Hampshire, New Mexico, and Oregon. In addition the governors of twenty states have accepted the act pending the meeting of the legislature. They are: Alabama, Arizona, Arkansas, Colorado, Connecticut, Idaho, Iowa, Kansas, Michigan, Missouri, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, Utah, Vermont, Virginia, Wisconsin, and Wyoming.

Kentucky

Senate No. 36. Regulating Practice of Medicine and Systems of Healing. After a preamble concerning economic conditions and the art of healing, this bill provides that county clerks keep a "Medical and Drugless Practice Register," and that it shall be unlawful to practice medicine, osteopathy, optometry, chiropractic or other systems without so registering. The state board of health would be given power to examine and certify the practitioners. Three courses of nine months each in a reputable college of any of the systems of practice is required to be eligible for the examinations, which would be similar but adapted to the school of healing represented. Boards of examiners would be appointed by the state board of health. The bill also provides for licenses for itinerant practitioners and vendors of nostrums. It is stated that nothing in it applies to the practice of Christian Science, dentistry, or to registered nurses.

House No. 94. Practice of Medicine. Authorizes the state board of health to issue a certificate to practice medicine to any reputable citizen who passes a satisfactory examination before it. Admittance to such examination to any person who has attended a reputable medical college for three years.

Senate No. 37. Vital Statistics. Amends law. Provides that county health officers shall appoint local registrars of vital statistics and defines their duties. The bill also provides that the state board of health shall have printed every five years bound volumes of an alphabetical list of all births and deaths reported with complete data. The state board of health would be required to furnish suitable blanks to registrars. Physicians, midwives, or undertakers would be required to furnish information upon demand.

Senate No. 39. Pollution of Water Supplies. The bill authorizes the state board of health to supervise and control watersheds, streams and ponds, to prevent pollution; and to issue rules and regulations for this purpose. It provides also that the board may order municipalities and others to take measures to prevent pollution, after adequate hearings. Appeals would be decided by a board of sanitary engineers.

Massachusetts

House No. 101. Medical Inspection in the Public Schools. Amends law. Requires examination of children returning to school without certificate from board of health after absence due to infectious or contagious disease. Suspicious cases in school referred to school nurse or physician.

House No. 181. Accepting provisions of the Act of Congress relative to the promotion of the welfare and hygiene of maternity and infancy, and providing for coöperation with the federal government.

House No. 495. Vaccination of Certain Children in Private Schools. Exclusion for Disease. Amends law. Requires vaccination of minors under fourteen for admittance to public or private schools, except on physician's certificate that physical condition would be endangered. Excludes from schools minors under fourteen who are members of household where there is infectious or contagious disease.

Mississippi

House No. 187. Physical Examination of Food Handlers. Requires cooks, waitresses, dishwashers, or any others who aid in preparing foods in hotels, restaurants, or cafes to have within ten days of taking employment a physical examination to be given free by state board of health. Owners would be required to furnish names of all employees to state board of health.

New Jersey

Senate No. 14. Adulteration of Ice Cream. Supplements pure food act by prohibiting adulteration of ice cream with chemicals.

Assembly No. 4. Purity of Condensed Milk. Supplements pure food act by prohibiting manufacture or sale of milk products blended with any fats or oils other than milk fats.

New York

("S. I." is Senate, "A. I." is Assembly Bills)

1. Children:

(a) S. I. 85; A. I. 21; also A. I. 55 and A. I. 62. To protect the health and welfare of women and minor workers by establishing a state minimum wage commission and providing for the determination of living wages for women and minors.

(b) A. I. 20. Amends the labor law in relation to hours of labor for minors and children by reducing the number of hours a day from nine to eight.

(c) A. I. 24; also A. I. 281. Amends general municipal law, so that awards of child welfare boards may be paid to guardians.

(d) A. I. 58. Provides for a state and local (county or city) board of mothers' welfare. The latter, among other duties, shall visit families to note health, care and education of the child.

(e) (See also 6d below.)

2. Foods and Drugs:

(a) S. I. 121. Amends public-health law by adding section granting pharmacist license to licensed druggists in practice since 1910.

(b) S. I. 167; A. I. 269. Amends agricultural law prohibiting sale of milk products blended with fats or oils other than milk fats.

(c) A. I. 19. Amends farm and markets law by establishing a bureau of milk regulation, having supervision over all milk producers and dealers and the quality and purity of their supplies.

(d) A. I. 181. Amends public-health law by giving commissioner of health the power to license hotels and restaurants selling non-intoxicating beverages.

3. Housing:

(a) S. I. 25; A. I. 186. Amends general city law and labor law, authorizes cities to create housing boards, and creates a state advisory housing board.

4. Industrial Hygiene:

(a) S. I. 12; A. I. 75. Amends labor law by creating a bureau of inspection, the scope of which includes industrial hygiene.

(b) A. I. 30. Amends workmen's compensation law in relation to occupational diseases.

(c) A. I. 236. Amends labor law by establishing a state industrial safety museum. Appropriates $25,000 for it.

5. Mental Hygiene:

(a) A. I. 61 (Concur. Resol.). Changes law to include a state commission or commissioner on mental hygiene, which shall visit all institutions for all types of mental defectives.

(b) A. I. 139. Amends law providing for hospital for veterans suffering from mental diseases by making it a state hospital for all persons suffering from mental diseases.

(c) (See also 8a below.)

6. Municipal Health:

(a) S. I. 47. Legalizes bonds for filtration plant at North Tonawanda.

(b) S. I. 53. Among other things, changes term "board of health" to department of public health and gives more discretion to health officer of the city of Amsterdam.

(c) S. I. 81; A. I. 39. Amends Greater New York charter in relation to declaration of imminent peril from pestilence.

(d) A. I. 295. Amends Greater New York charter by providing vacations for children certified to board of education by a physician as requiring same.

(e) A. I. 307. Amends act providing for departments of public health in second and third class cities by providing that health commissioner shall not be removed except for inefficiency, neglect of duty or misconduct, upon written charges, after an opportunity of being publicly heard in his defense.

(f) A. I. 311. Amends public-health law in relation to violation of rules of local board of health by allowing local board to prescribe that wilful violation of its orders shall

be a misdemeanor punishable by fine not exceeding $50, or imprisonment not exceeding six months.

(g) S. I. 193. Creates water district to be known as Sherrill-Kenwood, comprised of present city of Sherrill and part of city of Oneida.

7. School Hygiene:

(a) A. I. 177. Amends education law by broadening provisions for medical services in the schools.

(b) A. I. 200. Amends education law by providing (among other things) for sanitary care and fumigation of text books used by more than one pupil.

8. State Government:

(a) A. I. 6. Provides for 21 departments of the civil government, including 12 health, and 13 mental hygiene.

(b) A. I. 73. Amends law regarding state departments and institutions. Similar to 8a. Changes state lunacy commission to commission on mental hygiene.

(c) A. I. 13. Provides for a state budget system.

9. Women:

(a) S. I. 86; A. I. 1. Amends labor law by creating a bureau of women in industry.

(b) S. I. 176 A. I. 64 Amends public-health law in relation to examination and treatment of female patients by physicians.

(c) See also 1 a, 1 b, and 1 d above.)

10. Workmen's Compensation:

(a) S. I. 7; A. I. 103. Relates to insurance carriers.

(b) S. I. 71; A. I. 29. Amends workmen's compensation law in relation to direct settlements between insurance carriers and injured workmen and their dependents.

(c) S. I. 72; A. I. 85. Amends law by extending periods over which payments shall be made for permanent partial disabilities. A. I. 2 is also on this subject.

(d) A. I. 3; A. I. 74. Amends law by reducing time before compensation begins.

11. Miscellaneous:

(a) A. I. 56. Bureau of old age pension established by amendment to labor law.

(b) S. I. 184. Practice of optometry regulated by amendment to public-health law.

(c) A. I. 296. Barbers to be licensed by a state board of examiners. Board to set standards. An amendment to public-health law.

Virginia

Merger of Medical Colleges. A bill is now before the legislature which would establish the Medical Department of the University of Virginia, including schools of Pharmacy and Dentistry at the City of Richmond, upon the unconditional transfer of the property of the Medical College of Virginia.

STATE HEALTH NOTES—GENERAL

California

¶ YOU CANNOT STOP **CONTAGIOUS DISEASE** WITH A **LAW,** A **HEALTH OFFICER** AND A **PLACARD.**

¶ YOU MUST GET CO-OPERATION OF THE PEOPLE BY **EDUCATION,** BY **PERSUASION** AND BY **ORGANIZATION.**

From the Cover of the October, 1921, California State Board of Health Monthly Bulletin.

Florida

Several changes in the operation of the cancer clinic by the State Board of Health have been announced by Dr. R. C. Turck, state health officer. The clinic, which was organized several months ago as a radium clinic for the treatment of inoperable cancer in either women or men which could be benefited by the radium treatment, now will employ either X-rays, electricity or radium. The Board states that it is often of advantage to combine two or more forms of treatment in some cases, and all of the Board patients in future will have the benefit of this.

The Board has appointed a staff of physicians to examine and treat all cases. Dr. G. R. Holden, who has been doing the work alone will continue as director of the clinic, and will be in charge of the radium work. Dr. L. W. Cunningham, of Jacksonville, will assist in the department of X-ray treatment, and Dr. J. Lee Kirby-Smith of Jacksonville, in the department of skin cancer. The Board states

that no member of the clinic staff receives payment for service rendered, each devoting his time and services to treatment of the cases free of charge.

Since the announcement a few weeks ago that the Board was ready to accept any form of cancer in indigent patients who would be benefited by radium treatment it has received many applications for admission to the clinic.

Illinois

Since 1906 the individual cost of making diagnostic examinations of specimens in the laboratories of the State Department of Health, has decreased more than 81 per cent. In other words, the average cost of each test made in 1906 was $1.23 whereas the average cost for each test made during the six months' period that ended December 3, 1921, was only $.23. The decrease in the average cost per examination is explained largely by the correspondingly rapid increase in the number of examinations made. In 1906 there was a total of 2,370 specimens examined at a total cost of $2,939.00 as compared with 54,002 for the six months ended December 31, 1921, at a cost of $12,865.00.

A rather significant index into the growing dependence of physicians on laboratory tests as aids to diagnoses is found in the ever-increasing volume of work done at the State Department of Public Health Laboratories. Since the opening of schools in the fall of 1921 the monthly average number of tests made in the main laboratory at Springfield has been greater than the annual average was up to three years ago. In December, 1921, there was a total of 12,449 examinations made as compared with 12,003 for the entire fiscal year of 1919.

The total number of tests made at the State Laboratories during the fiscal year of 1921 was 52,008 or more than four times greater than the total number for 1919.

Indiana.

A public-health survey of Lafayette, a city of 22,486 population (1920), and of Tippecanoe County, in which it is situated, was conducted during the summer of 1921 by Dr. Murray P. Horwood, of the Massachusetts Institute of Technology, under the auspices of the Tippecanoe County Tuberculosis Association, whose objectives are not confined to tuberculosis control, but include the whole field of public health. The cost of the survey was met from funds raised during the 1920 Christmas Seal sale, and the Association has announced its purpose to make Tippecanoe County the healthiest community in the world in five years.

The results of the survey are being published in a series of pamphlets, each covering one of the chapter headings of Dr. Horwood's recent book on Public Health Surveys (reviewed in this issue). Chapters I and IV, devoted to Water and Milk Supply, respectively, have been received.

Considerable pollution was found in the Columbian Park Reservoir, in which the city's chief water supply is stored, and the recommendations include chlorination and stricter laboratory and police supervision of the public and private supplies. The city officials have already acted on some of the recommendations.

The milk supply was found in a still more unsanitary condition, and the surveyor made recommendations for a stringent milk ordinance to be applied to the entire county, and for a full-time trained milk inspector to administer the provisions recommended. Conditions at the dairy and creamery of Purdue University (located in West Lafayette), while superior to most of the commercial milk distributors, were not ideal, the milks sold there not being pasteurized. It was recommended that the University dairy be made a model plant for the county, and coöperate with a reorganized health department in a campaign of education to make the dairy farmers conscious of their responsibility for the milk supply.

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Dr. John Ferrell, of the International Health Board, sent Dr. George P. Paul to this state to secure three counties to promise to employ all-time health officers provided the International Health Board would contribute toward the work. Dr. Paul proved exceedingly active and effective and succeeded in inducing the citizens of Delaware, Fulton and Gibson counties to meet all the conditions according to a new law that county health commissioners would give their entire time to the work. The documents have all been signed by the different counties, and now competent men are being sought who will accept the salary, fixed at no less than $3,000, and take hold of the work in these counties. Dr. Paul is giving his entire time to finding these three men.

Maine

George H. Coombs, M. D., director of the Division of Social Hygiene of the State Department of Health, has been doing excellent work in some of the lumber camps of the state, especially among those of the Great Northern Paper Company. He has been showing his motion-picture films, using the stereopticon, and giving lectures on social hygiene. The Great Northern Paper Company has been showing excellent coöperation in helping Dr. Coombs get this information to its employees.

Massachusetts

The following is an extract taken from an address of Governor Channing H. Cox to the Legislature of Massachusetts:

The commonwealth has recognized its responsibility for the care and treatment of those suffering from mental diseases and defect, and in the state hospital system has provided facilities for the treatment of these cases. In most instances, however, only those patients receive treatment who have well established and serious mental symptoms.

It is an accepted fact that approximately one-half of all patients admitted to our state institutions are suffering from mental disorders that could have been prevented. Our efforts must be continued to overcome a hesitation to use our state hospitals,—a hesitation due in part to ignorance and in part to the continuing effect of old tradition. Every effort must be made to bring treatment to bear upon the early stages of mental disorder, through a continued campaign of education and in trying to promote the best possible conditions in childhood for those who are handicapped either by mental defect or by nervous instability which may later lead to nervous and mental disorders. The commonwealth has recognized the importance of a practical mental-hygiene program, and has provided much legislation to make effective such a program.

The state's program for the feeble-minded embraces the following factors: identification, registration, education, supervision and segregation.

The establishment of school clinics, whereby school children three or more years backward are examined, represents an extraordinary achievement, there being no known similar provision anywhere else in the world. These clinics have been made constructive from the start, the purpose of the examination being not to discredit the backward child in any way, but rather to ascertain exactly what school progress he is making, to insure that he is not worked beyond his capacity, and that not too much is expected of him, and so far as possible to ascertain any special reasons for his lack of development.

The continuing census of the feeble-minded which the Department of Mental Diseases has under way, has far-reaching possibilities; the regular checking up of the lists will show those defectives who are not capable of community life and also those of the hereditary grade, who are likely to propagate their kind and who need institutional segregation. It will also show the well-developed defectives, who are conducting themselves properly and who can safely be trusted in the community. our schools for the feeble-minded living in the community under slight supervision, practically all behaving themselves and the majority supporting themselves.

The state hospital system conducts well-organized out-patient clinics. This work should be continued and encouraged. A practical program in mental hygiene looks forward to coöperating with the courts in the examination of any one where there is the least suspicion of mental disease or mental defect. This should be encouraged, to the end that all courts having to do with juvenile delinquency could be furnished with a psychiatric report.

The Psychopathic Hospital provides a unit of the general hospital type for the reception of early cases of mental disorder. There is a very noticeable tendency for individuals to make use of such small units who are unwilling otherwise to use the state hospital. To take advantage of this principle there is legislation available for the organization of small psychopathic hospital units.

Massachusetts has gone far in providing care and treatment of the insane and mentally defective. The work is being well done today and large appropriations are necessary for its continuance. The only escape from constantly increasing expense lies in the adoption of more preventive measures. I urge the continuance of the support given last year to a program of prevention to offset the growing and increasing demands for institutions to care for those whose mental disorders could have been prevented, and to the development of all means to care for the individual, especially the feeble-minded, in the community

under supervision, rather than the more expensive plan of establishing new hospital facilities.

Michigan

Announcement is made by the Michigan Department of Health, Lansing, Michigan, of the publication of three numbers of its reprint series which may be obtained by readers of the JOURNAL upon request. The series includes: "Comparative Studies of Diphtheria Cultures of Loeffler's Medium, with the Original Swabs Transported by Mail," by C. C. Young and Minna Crooks; "The Wassermann Test and Its Interpretation," by R. L. Kahn; and "Review of the Hillsdale, Mich., Typhoid Fever Epidemic of 1920," by R. M. Olin.

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Typhoid fever, "index to sanitation," decreased in its death-rate to 7.4 per 100,000 population during 1921. The rate in 1920 was 8.0. Two hundred and eighty-four persons died of the disease last year, compared to 297 in 1920.

"Though six other important communicable disease decreased in 1921," says Dr. R. M. Olin, commissioner of health, "sanitarians are generally more elated with a slight cut in the typhoid rate than in any other disease. A low typhoid fever death-rate is the index to efficient sanitation and a high level of intelligence in a community; prevalence of the disease indicates a prevalence of filth and ignorance."

Eight Michigan cities—Cheboygan, Escanaba, Holland, Ludington, Marquette, Muskegon Heights, St. Joseph and Wyandotte—completed the year with zero typhoid rates. None of these cities reported a single death. They represent an aggregate population of 85,714. Detroit reported 55 deaths from typhoid, giving the city a death rate of 5.1 per 100,000. Grand Rapids reported six deaths, equivalent to a rate of 4.2.

Missouri

A recommendation that it repeat its free examinations of crippled children once each year was adopted recently for presentation to the St. Louis Medical Society by the Society's Committee on Public Information and Instruction. The Committee conducted such examinations on three days during January, at which time 269 children, whose parents could not afford placing them under treatment, appeared. The entire number were assigned by the Committee to clinics through which they will pass to hospitals, if hospital treatment is necessary to correct or improve their deformities. It is the opinion of the Committee that the Medical Society will adopt its recommendation. These examinations would give the committee complete knowledge of all the crippled children, and it believes would result in a brightened horizon for many hundreds of shut-ins. Regular examinations, the Committee points out, also would put it in the possession of facts that could be used to better the understanding of the public of Missouri of its responsibility to provide for the education and care of these children, beyond the surgical relief of their physical disabilities.

Furthermore, the Committee believes that, although it made every effort to spread the news of its offer as widely as possible, many children, particularly in the country districts, were not brought in during the examinations, and that these should be reached through a renewal of the offer at some future time.

The Committee was assisted in its assignment of the 269 children regularly examined by several physicians who served during the examinations. Thirty-five per cent of the children were sent to the orthopedic clinic of Washington University, 35 per cent to the St. Louis University clinic, and 10 per cent each to the Missouri Baptist Sanitarium, the City Hospital and Mullanphy Hospitals, where regular orthopedic clinics are maintained or will be established.

The neurological and nutritional clinics of these institutions also will be available for treatment of the children. All the charges commonly incidental to attendance at these clinics have been suspended.

Many of the children will require braces, some so extensive as to be quite expensive. The fund available for use in making braces for the children of parents who cannot pay is limited, and the demands upon it at this time are expected to be heavy. The Committee desires it known that it may find it necessary to apply in some cases to the Provident Association or some other agency of the Community Council, the Red Cross and to individuals inclined to contribute to the purchase of braces.

New Mexico

Last year, nearly eight thousand specimens were examined and reported upon in the public-health laboratory at the University of New Mexico, Albuquerque, more than double that done the year before. In fact, more cultures of diphtheria alone were examined in 1921 than the total of all specimens that came to the laboratory in 1920. During the coming year it is expected that the volume of examinations will be greatly increased, for there are eight counties in the state which have employed full-time health officers. Fortunately, four of these health officers have laboratories for their counties, but there are many special tests that can be done only at the state laboratory.

New York

In spite of the gratifying and widespread progress in recent years in controlling typhoid fever, the New York State Department of Public Health is still called upon to investigate an occasional local outbreak. During the two weeks ending October 13, 1921, 53 cases occurred in Gouverneur and the surrounding communities in that part of St. Lawrence County. In every instance the patients had drunk water from a well on the premises where the first case had developed and this was the only possible mode of infection common to all the cases. The well was immediately closed and on examination gave confirmatory evidence of extreme pollution. Fifty-six feet distant from the well was the family privy and 68 feet away was a creek which received the sewage from neighboring houses. This creek rose during a downpour in August until its waters came up to the wall beside the well. This explosive outbreak again shows how imperative it is that a public water supply shall be both safe and acceptable. The Gouverneur public water supply is well chlorinated and bacterially safe but because of industrial wastes it is at times objectionable in color, odor and taste. On the other hand the water of this well was pleasing to the senses but subject to pollution from several sources. As a result 58 persons, some from out of town and distant counties, motor tourists and hotel guests, turned away from safe but repellent water to the sparkling spring—and imbibed typhoid fever.

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Activities for the promotion of public health have steadily grown until they now reach the remote districts. The State Health Department has grown in the 41 years of its existence until it has a staff of 356 employed in its ten divisions. These divisions, each under the supervision of a director, are: administration, sanitation, laboratories, communicable diseases, vital statistics, public-health education, child hygiene, public-health nursing, tuberculosis, and venereal diseases. The work of these divisions is closely coördinated, and their activities are carried on in close coöperation with local health boards and officials.

Among the important features of the department's work is that of the division of sanitation, the main effort of which is devoted to the supervision of the sanitary quality of some 550 public water supplies of the state which serve more than eight million persons. In the past fifteen years an average of 2,000 lives per year have been saved from typhoid fever alone.

Modern methods for the prevention of disease, as well as for its diagnosis and treatment, are to a large extent based upon the results of laboratory examinations. The state laboratory service is highly developed and most efficient and extensive. From a service in 1913 limited to the examination of only three kinds of specimens, with a total of 13,000 examinations, last year the diagnostic laboratories alone made over 200,000 examinations. However, this service is not yet complete, and physicians on some of the rural districts are greatly handicapped by the lack of laboratory service close at hand. Twenty-one of the 62 counties of the state now have an established laboratory service, compared with 8 that had the service in 1913.—F. D. Beagle, *State Service Magazine*, January-February, 1922.

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For years public-health agencies have been preaching to the farmer the necessity of modern sanitation as the first essential in securing healthful and comfortable living conditions in the rural home.

Seeing the importance of this instruction as a health measure the New York State Health Department suggested the desirability of imparting this information by means of a "movie"—and through the generosity of the Atlantic Division of the American Red Cross such a film has now been made available to both health and farm agencies. The film is entirely free from any advertising matter and its technical accuracy is guaranteed by the fact that the entire demonstration was planned,

staged and acted by the staff of the Division of Rural Engineering of the New York State College of Agriculture. The making of the film was supervised by the New York State Department of Health and the photography is of the highest order.

The film shows the installing of a complete plumbing system in a farm home. First a kitchen sink is erected and a pump installed; then follows the supplying of running water from a tank, after which hot water connections are made to the water front of the kitchen stove and running hot and cold water secured in the kitchen. The film then goes on to show how easily a modern bath room is added, lavatory, bath tub, and water closet being put in and connected and proper waste drainage arranged and by diagrammatic drawings the principles of septic tanks are shown. Each step is carefully shown in full detail by "close-ups". The methods of cutting and threading pipe, its connections, the use of check valves, unions and so forth and the cutting and connecting of soil pipe are shown in detail. This picture should accomplish the two-fold purpose of showing the farmer how easy and simple the work is and how it may be done step by step and added to as means permit, and of really teaching him the detailed technique of each process. The film should be of the utmost value especially in the fields of public-health education, agriculture extension and farm bureau work.

The film measures 2,040 feet and is in two reels. Price $200 a copy.

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In the view of the State Health Department, a convincing case has not yet been made out for the use of vaccines for the prevention of pneumonia. At the time of the last influenza epidemic, a thorough investigation of the efficacy of these vaccines was made, both by experiments upon animals, and by careful observation and analysis of the results of this method as used among 19,000 inmates of state institutions. This investigation indicated that little or no protection against pneumonia was afforded by the use of the vaccines.

Ohio

The "Babies' Special," directed by the Babies' Dispensary and Hospital of Cleveland, has done rural child welfare work in Cuyahoga County for the past two summers. A well-equipped babies' dispensary was housed on a one-and-a-half-ton truck and put in charge of a doctor and a nurse. The findings of the past summer confirm the findings of the summer of 1920, part of which were:

The prevalent idea that the fresh air and wholesome living conditions in the country insure healthy childhood, and that the congestion, dirt, impure air, and increased exposure to disease in the city must be responsible for unhealthy children, cannot be accepted without reservations.

Malnutrition, both primary nutritional and secondary post-infectious, was very prevalent. The large number of cases of defective mouth hygiene emphasized the need of rural dental clinics. Rickets occurred more frequently than the so-called "wholesome living conditions" of the rural districts might call for. Tuberculosis and contagious diseases were less frequent than in city districts. Paradoxical as it may seem, many of the mothers showed that it was quite difficult to obtain fresh, clean cow's milk suitable for baby feeding.—J. E. McClelland, M. D., *Mother and Child*, January, 1922, Vol. 3, No. 1.

Ontario

The Junior Red Cross, with more than a hundred auxiliaries organized in the schools throughout the province, and an enrollment of several thousand school children, has already earned for itself a place of distinct value to society. It is endorsed and recommended by the Minister of Education, the chief inspector and chief school medical officer, and cannot be considered merely a fad.

The Junior Red Cross is a link that connects the schools with the great social movements. It provides for children, training in junior citizenship, and organizes them for self-controlled participation in civic affairs, such as hospitals, sanitoria, orphanages, shelters, etc.

The money collected by the auxiliaries is used for whatever charities the auxiliary votes to support. The children are particularly interested in work for crippled or incurable children and many donations have been made for buying braces, crutches, spinal jackets, etc., for less fortunate brothers and sisters. Blind children are not forgotten, nor are homeless children and orphans.

It is gratifying to note that the Junior Red Cross has not limited its contributions to Canadian children alone. Belgian, French, Serbian and Russian children have all been remembered, as have some of the small Chinese famine sufferers.

Pennsylvania

The annual meeting and conference of the Pennsylvania Tuberculosis Society, held at Harrisburg, January 24, 25 and 26, marked the thirtieth anniversary of the founding of the Society, the first organization of its kind in America. From the standpoint of interest and the value of the addresses and discussions, it was one of the most successful ever held by the Society.

Some of the subjects discussed were: An Adequate Tuberculosis Program, Health Education in Pennsylvania Schools, Future Possibilities of the Modern Health Crusade, The Place of Nutrition Clinics in Tuberculosis Prevention, the United Fight Against Tuberculosis and Tuberculosis in Industry.

Health dramatics and demonstrations had an important part in the conference.

The Society adopted the following resolution: RESOLVED, that the members of the Pennsylvania Tuberculosis Society, assembled in annual meeting in Harrisburg, January 25, 1922, hereby recommend to the National Tuberculosis Association that arrangements be made whereby the International Union on Tuberculosis shall be invited to meet in Philadelphia during the Sesquicentennial Celebration in 1926, also that arrangements be made whereby the annual meeting of the National Tuberculosis Association in 1926 shall be held in the same place, and be it further RESOLVED, that copies of this resolution shall be forwarded to the National Tuberculosis Association, the chairman of the Sesquicentennial Celebration, and to the mayor of Philadelphia.

The report of Arthur M. Dewees, executive secretary, stated: "Two outstanding items of interest and causes for satisfaction are the lowered tuberculosis death-rate in the state and the steps taken to more effectively combat the disease through the providing of county tuberculosis hospitals."

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Virginia

The following paragraphs, extracted from Governor E. Lee Trinkles' recent inaugural address, augur well for public-health work in Virginia during his term:

"I feel that I should express to you my very strong interest in work for the conservation of health and prevention of disease. In proportion as people are well and strong, we may expect them to be happy, productive, and progressive.

"No tax upon the people is so oppressive and so unjustifiable as the tax that is levied by preventable disease. We now know how most of the serious diseases are carried, and we know how to prevent their transmission. It is our bounden duty to utilize this knowledge.

"Disclosures of examining boards, here and abroad, during the war were shocking to all right-thinking people. No one had imagined that such a large percentage of young men in our country and in other countries were unfit for military service. It is no justification for us to say that Virginia was not notably deficient—that our trouble was the trouble of all.

"We cannot erase that record, but we can prevent its repetition. Health is, by and large, a purchasable commodity. We are not able to guarantee additional years to any one individual, but we are able, if we afford a sufficiency of prevention, to guarantee a longer average life to the people of a community or a state.

"As a concrete illustration, the record of the State Board of Health in reducing the number of typhoid cases from more than 14,000 in 1909 to less than 3,000 in 1920, and the number of deaths from more than 1,400 in the former years to 267 in the latter, is surely sufficiently illuminating. What has been done with typhoid and the other filth-borne diseases has measureably been done with other groups; and we may expect great results from the newly-instituted coöperative efforts of the health and school authorities with the children of Virginia.

"In connection with health matters we cannot overlook the serious scarcity of doctors in our rural sections and, unfortunately, this is a condition which may not be expected to rapidly improve. It is, therefore, incumbent on our fellow citizens in the country to guard themselves. Wherever possible there should be active health organizations in counties, and I feel it a duty to urge upon all the people to heed the advice and obey the regulations of the State Board of Health.

"So far as our finances will permit we should be liberal in our appropriations for public health. This is a sound, economic principle. Weak and sickly people cannot compete with strong and healthy ones. We should be willing to make economies in other lines rather than ignore this health work which, humanity and charity aside, offers to a state the most certain and largest dividends for the amounts invested."

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst and E. B. Starr.

Contagion in Industrial Establishments.—It is quite a common practice for the larger establishments to have a doctor or nurse, or both, to look after the health of the employees, a wise provision which should be universally adopted.

This is not the place to more than mention the importance of fresh air, ventilation and safety devices. Safe water for drinking purposes should be distributed so that employees can reach it without too much loss of time. No common drinking cups should be tolerated. Sufficient toilet facilities, preferably with split seats, should be provided. If hot and cold water are supplied they should be piped so that both are delivered through a common spout. The common cake of soap should be replaced by a liquid soap. The hands should be dried on paper towels or on individual hand towels.

Ideally all employees should be examined for infectious diseases before entering upon their duties. This recommendation is aimed particularly against tuberculosis and venereal disease. Such a procedure is hardly practicable, although something may be done along this line. It is hard to exclude tuberculosis subjects; yet it should be done if the case is an open one, and the time is not far distant when the employees themselves will insist upon it. Less compunction need be exercised in excluding those infected with venereal disease.

An employee sick with an infectious disease should be excluded until he is well or until the physician feels it safe for him to return. It is of much value to have the nurse visit the homes of employees who are out more than two or three days, to ascertain whether the employee is sick, and the nature of the illness.

When an infectious disease does develop, the factory doctor should inspect daily those in most intimate contact with the sick person, that he may be able to exclude any others who are infected at the earliest possible moment.

Cooks, waiters, bakers, and those who dispense drinks, should be licensed and examined at least twice a year, and a license card issued for a six months period, this examination to be done by the health department with painstaking care. Each applicant should be stripped to the waist, so that the chest, abdomen and skin may be examined, as well as the eyes, mouth, throat, etc. The men should be examined for venereal disease routinely, and the women if there is a suspicion. It has been found that this examination, if courteously and well done, and particularly if the physician points out any physical defects which need remedial measures, will not be objectionable. They will appreciate that they are getting a little free medical advice which may be of much importance to them.—D. L. Richardson, M.D., *The Nation's Health,* Vol. IV, No. 1. January, 1922.

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Accidents in Coal Mines.—Accidents at coal mines in the United States in 1921 resulted in a smaller loss of life than in any year since 1903, according to a report just compiled by the Federal Bureau of Mines. Information received from all state mine inspectors shows a total of 1,973 men killed, as compared with 2,271 in the preceding year, a reduction of 298 fatalities, or more than 13 per cent.

The decrease was due largely to the fact that the bituminous mines were idle much of the year on account of the depressed condition of industry in general and the resulting lack of demand for coal. The output for the year is estimated by the U. S. Geological Survey at 494,500,000 net tons, of which 407,000,000 tons was bituminous coal and 87,500,000 tons was anthracite, the total production representing a decrease of more than 23 per cent below the tonnage mined in 1920. For every million tons of coal produced, the fatality rate for the past year was 3.99, while for 1920 it was 3.52. Paradoxical as it may seem, it is believed that the idleness of the mines during much of the year, while resulting in fewer lives being lost, nevertheless was partly responsible for

the increased accident ratio on the basis of production. Underground operations tend to become more hazardous during periods of idleness, because of increased likelihood of roof falls, gas accumulations, etc., as well as a lessening of the morale of the workmen, resulting in more frequent accidents when the men return to work.

Most of the fatalities were, as usual, due to falls of roof and side, and haulage accidents. The year was remarkably free from large disasters, there being but five accidents killing five or more men each, resulting in a total of 34 deaths. These deaths constituted but 1.7 per cent of the year's total of 1,973 fatalities, a lower record than for any year during the past decade.

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Accident Prevention from a Medical Viewpoint.—It is to be emphasized that a fairly extensive experience in the practice of industrial medicine indicates safety work to be one of the basic needs of industry. The safety campaigns of the past ten or fifteen years have been a great success in that they have materially reduced the number of serious accidents with benefit to the employees and the employers, the value of which cannot be figured in money. Complete safety work is composed of two parts, one as indispensable as the other: (1) A more extended use of mechanical safety devices; and (2) a recognition of the importance of the human element before and after the accident, without which mechanical protection can only prevent a small number of accidents.—W. H. Lipman, M.D., *The Nation's Health*, Vol. IV, No. 1. January, 1922.

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Gas-Masks Ineffective During Oxygen Deficiency.—Since its army mask investigations ceased at the close of the war the Bureau of Mines has carried on intensive investigations which have resulted in a mask which will allow the wearer to enter smoke and fumes given off in the open air or in large open buildings. When this mask has been made commercially it will undoubtedly be of great value in the protection of men who work where such gases are likely to be encountered, and to firemen in fire-fighting in and around buildings. But it must be borne in mind that when there is oxygen deficiency, which may occur in mines after explosions or fires, in confined spaces, in surface fires, in basements or closed rooms or where illuminating gas or gasoline vapor may be present in high concentration, as in tanks, gas conduits, or possibly sewers, or in the unventilated holds of ships, then only self-contained breathing apparatus, otherwise termed oxygen breathing apparatus, can be safely used.

When it is desired to enter a confined space, such as a gas tank or a sewer where the presence of gases or deficiency of oxygen is suspected and self-contained breathing apparatus is not at hand, analyses or tests should first be made to determine the nature of the gas and that the percentage of oxygen present is adequate for breathing —that is, at least 17 per cent. Unless at least that amount of oxygen be present the place should not be entered, even with a mask which has absorbents for concentrated poisonous gases.

In a mine in which an explosion has occurred or a fire is raging, granting that there may be sufficient oxygen where air is being circulated, there is usually, nevertheless, in the local atmosphere on the return side of a mine fire or in the inner workings of a mine where the explosion has destroyed stoppings, a deficiency of oxygen accompanying high concentrations of carbon monoxide and carbon dioxide. Moreover, it can never be foretold how rapidly the atmosphere may change at a particular place in the mine where recovery operations or fire-fighting is being carried on, which would make it dangerous or fatal to the wearer of a mask. Insufficiency of oxygen gives no warning. A man wearing a gas mask in such workings, while crossing a fall of roof, or when at the face of an unventilated rise or dip heading, or in similar situation, may drop without warning upon encountering an atmosphere deficient in oxygen owing to a accumulation of fire damp or black damp supplanting the breathable air.

The Bureau of Mines, therefore, recommends on the basis of present evidence that only self-contained oxygen breathing apparatus should be used in mines following explosions or fires. There are always men willing to risk their lives to save others who would be tempted to use masks if they were on hand and the risk is larger than should be taken.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Bacteriology of Pneumonia in Children.—The author has studied the bacteriology of 98 cases of lobar pneumonia, 52 cases of bronchopneumonia and 15 cases of post-pneumonic empyema, all in patients 12 years of age or younger. In lobar pneumonia or empyema following, pneumococcus type I has been found in 29.9 per cent; pneumococcus type II in 3 per cent; pneumococcus type III in 7.1 per cent, and pneumococci of group IV in 37.7 per cent. The general reliability of these figures is suggested by the reasonably close correspondence to the findings in a parallel series of cases in adults. It is further suggested that the etiology of lobar pneumonia in infants and children follows in a general way that in adults for a given community at a given time. Studies of comparative mortality suggest that the child possesses a better natural immunity against pneumococcus, type for type, than does the average adult. In bronchopneumonia, the fixed types of pneumococcus are much less common than in lobar pneumonia. Common mouth forms are much more common. Regardless of type, the general mortality for bronchopneumonia is much greater than for lobar pneumonia. This is probably due to the conditions of origin and circumstances surrounding the former disease. *Streptoccoccus hemolyticus* and *Staphylococcus aureus* have been common in bronchopneumonia and have been followed by a particularly high mortality. There has been an extraordinary tendency to the development of empyema in infections with pneumococcus type I. Nearly 38 per cent of pneumonias charged to this type developed this complication. Numerically it outranks any other cause of empyema in this series by about six times. This phenomenon bears no relation to the administration of serum.—A. B. Lyon, *Amer. Jour. Diseases of Children,* January, 1922, 72. *(D. G.)*

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Formaldehyde Test for Syphilis.—The value of this test lies in its simplicity. Blood is drawn in the usual manner as for a Wassermann test. At the end of twenty-four hours the serum is decanted from the test tube into another clean but not sterilized test tube; a drop of ordinary commercial liquor formaldehyde is added, and the tube plugged with cotton wool. The serum and formaldehyde are allowed to remain at ordinary room temperature for twenty-four hours. At the end of this period observation is made as to the condition of the serum. Coagulated serum is a positive result; fluid serum is a negative result. The author endorses the method as being of value.—C. Suffern, *Lancet,* (London) 2, 1107, (1921); *Jour. A. M. A.,* 77, 2150, (1921).

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Positive Wassermann Reaction in Typhus.—The author reports the results he secured from the application of the Wassermann test to fifty serums of typhus patients in whom there was no clinical evidence of syphilitic infection. During the fever period, forty-six serums (92 per cent) gave a positive Wassermann reaction. From his observation the author reaches the conclusion that the Wassermann test in typhus fever, applied to inactivated serum, is almost always positive, if the blood sample is taken before the crisis. He recommends in doubtful cases, if the Weil-Felix test is not feasible, and a differential diagnosis (for example, as between typhus and typhoid fever) is desired, that a positive Wassermann reaction be interpreted as pointing to typhus fever, since in many control cases of typhoid and paratyphoid, solely negative results were secured. What the mechanism of the positive reaction is, he is unable to state, but suggests that possibly Wassermann's recent investigations may throw light on the subject. The author makes no attempt to explain the repeatedly reported negative Wassermann reactions of other investigators, as he has no detailed information in regard to the technic they employed.—K. Bauer, *Muench. med. Wochenschrift,* 68, 1251 (1921); *Jour. A. M. A.,* 77, 2153 (1921).

Cause of Sedimentation of Blood Corpuscles.—The rate of sedimentation of blood corpuscles in pregnant blood is far greater than that of normal blood, and the rate increases as the months of pregnancy increase. The authors assert that there are two causes for it. (1) The ratio of blood plasma to corpuscles in blood of pregnant woman is greater than that of normal woman. (2) The corpuscles are more easily agglutinated in pregnant blood than in normal blood. The causative agent of agglutination of the corpuscles in pregnant blood does not exist outside of colloidal substances. The total amount of colloid has no influence, but the following facts have clearly been established: (a) Fibrinogen markedly increases the rate. (b) Globulin increases the rate. (c) Albumin decreases the rate. In pregnant blood these three colloidal substances are so changed as to increase the rate of sedimentation. Besides the specific gravity and viscosity of pregnant blood are lower than those of normal blood, which may have some influence on the rate of sedimentation. The concentration of hydrogen-ion of the serum of the pregnant woman is higher than the normal serum and may somewhat inhibit the rate of sedimentation.—T. Sakae and T. Tsutsumi, *Japan Medical World*, 1, 1, (1921); *Jour. A. M. A.*, 78, 149, (1922).

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Micromethod to Determine Specific Gravity of Urine.—Only 1 or 0.5 c.c. of urine is required for the test. Chloroform and benzin are mixed, the latter slightly in excess, and then a drop of urine is dropped into the mixture. If the drop rises, the proportions are correct. If it falls, more chloroform is added until the urine rises when it is dropped into the fluid. With the mixture thus obtained as a basis, further tests are made with fresh specimens, adding benzin until a mixture is reached in which the drop of urine settles rapidly to the bottom. The specific gravity of the mixture, in which this occurs, is recorded, as is also the specific gravity of the mixture with excess of chloroform in which the drop of urine rapidly rises. The average of the two figures gives the specific gravity of the urine. A table of the findings with this and other methods shows that it is accurate enough for all practical purposes.—C. Noeggerath and H. S. Reichle, *Arch. Kinderheilkunde*, 70, 161, (1921); *Jour. A. M. A.*, 78, 154 (1922).

The Urine Reaction in the Tuberculous.—The author insists that the own urine reaction is the work of the salts in the urine, and that it may occur in both the healthy and the tuberculous. There may be antigens in tuberculous urine, but they are not strong enough to give a differential reaction unless the urine has previously had the salts removed.—K. Levi, *Med. Klinik*, (Berlin) 17, 1296, (1921); *Jour. A. M. A.*, 78, 155, (1922).

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Streptothrix as Cause of Gastric and Duodenal Ulcer.—A broth culture of a streptothrix of the species actinomyces, obtained from a case of acholuric jaundice, was injected intraperitoneally into a monkey. The animal preserved its condition and kept up its weight for seven months, after which it quickly failed, and was killed thirty-two weeks after the first injection. During the period of observation the animal was more apathetic than the controls, and for the last four months sat crouched in one corner of the cage. At the necropsy it was found that an inflammation of the spleen with thrombophlebitis gave rise to infective emboli, evident in their effects in the stomach, producing ulcers and hemorrhage, in the liver and lungs producing hemorrhagic lesions; that in splenic anemia, and more rarely in acholuric jaundice, the gastric hemorrhage may be due in a proportion of cases to septic embolism and consequent inflammation of the branches of the vasa brevia.—A. G. Gibson, *Brit. Med. Jour.*, (London) 2, 933, (1921); *Jour. A. M. A.*, 78, 70, (1922)

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Cultivation of Tubercle Bacilli.—The human tubercle bacillus grows equally well on culture tubes containing slants of glycerol agar or egg medium (Petroff's) regardless of whether the tubes have been capped with waxed cloth or with tin-foil, securely held in place with rubber bands, thus indicating a ready access of atmospheric air in the folds of the tin-foil in spite of precautions to prevent this means of the escape of the carbon dioxide produced by the respiration of the bacilli. Tin-foil capping does not account for the low percentage (27.3) positive cultures obtained by Corper, Fiala and Kallen in cultivating microscopically positive sputums. The addition of "aminoids" beef or casein to the ordinary laboratory glycerol broth has no appreciable effect on the growth

of human tubercle bacilli on this medium; such an addition may even markedly retard the growth of the bacilli as was found to be in the case of beef "aminoids."—E. Louis Goodman and Mary Moore, *Jour. of Inf. Dis.*, 30, 58, (1922).

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Laboratory Diagnosis of Whooping Cough.—In 1,665 specimens sent in for examination, the Bordet-Gengou bacillus developed in 970. The work was done at the official Serum Institute at Copenhagen, an aluminum box with the culture material being sent by mail or messenger on demand by mail or telephone. The author gives the details of making the durable potato-glycerin-agar-sugar culture medium to which defibrinated horse blood is added when the box is to be sent out. The patient coughs into the box, but does not expectorate in it. In specimens from the catarrhal stage, the bacilli were found in 75 per cent; in the first week of the spasmodic phase, in 62.5 per cent; second week, 70; third week, 53; fourth week, 47, and fifth week or later, in 16 per cent.—A. H. Meyer, *Acta Pediatrica*, (Stockholm) 1, 99, (1921); *Jour. A. M. A.*, 78, 78, (1922).

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The Pathogenicity of Bacillus Botulinus.—The optimum temperature for growth and elaboration of toxin by *B. botulinus* is that of the body temperature, 37° C. *B. botulinus* can be recovered from the internal organs of animals which have been fed or injected with toxic cultures and also with toxin-free spores of this organism. *B. botulinus*, under certain conditions, will grow and produce toxin in the body of the guinea-pig. Experimental botulism can be produced in laboratory animals by the feeding or injection of massive quantities of toxin-free spores of *B. botulinus*. The presence of toxin produced in the body as a result of growth of toxin-free spores in the body can be demonstrated by the precipitin test as well as by direct toxicity tests. Botulism poisoning in man due to the ingestion of spores is probably very rare, if it occurs at all. The possibility of such occurrence must, however, be considered.—Paul F. Orr, *Jour. of Inf. Dis.*, 30, 118, (1922).

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The Auto-Urine Reaction.—The author states that the Wildbolz technic for the auto-urine reaction elicited a positive response only in forty-nine of sixty cases with unmistakable signs of active tuberculosis. In the eleven negative, the intradermal tuberculin test at 1:1,000 and mostly at 1:10,000 yielded a positive reaction. In three of the cases several repetitions of the own urine test finally induced a positive reaction. These experiences and those with ninety other patients free from or suspected of tuberculosis show that the urine in active tuberculosis may be transiently unable to give the specific reaction, but that by repeating the test the reaction may finally be elicited. Analysis of the small group of contradictory findings indicates that the salt content of the urine may modify the response. Hence, the urine should be made free from salt before applying the test, without altering the antigen.—R. Schmid, *Schweiz. med. Wochenschrift*, 51, 996 (1921); *Jour. A. M. A.*, 77, 2095, (1921).

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A Simple Method of Staining Gram-negative Organisms.—A modified Gram stain, without decolorization with alcohol, has been found useful in staining gram-negative organisms, which take ordinary stains with difficulty. The specimen is fixed in the flame, stained three or four seconds with freshly prepared carbolgentian violet solution, 1 part saturated alcoholic gentian violet in 9 parts of 5 per cent phenol (carbolic acid), washed in tap water, treated three or four seconds with Gram's solution of iodin (iodin, 1 gm., potassium iodid, 2 gm., water, 300 c.c.), again washed in water and dried. The organisms stain a purplish black, resembling preparations stained with Fontana's silver stain. Fontana's stain, however, requires more time for staining, and the solutions are difficult to prepare and are unstable.—Ruth Tunnicliff, *Jour. A. M. A.*, 78, 191, (1922).

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Differential Staining of Granules in Bacilli.—Stain films fixed by heat with Neisser's staining fluid No. 1. This consists of methylene blue, 1 gm.; 96 per cent alcohol, 20 c.c.; glacial acetic acid, 50 c.c. and distilled water, 950 c.c. This mixture is allowed to remain on the films for thirty seconds. Wash in water. Apply Gram's iodin solution for ninety seconds. Wash in water. Apply watery solution of saffranin T, 0.5 per cent, for thirty seconds. The granules appear black on a pink background. The picture is sharp, the contrast excellent. The method

is applicable to any bacteria which contain granules, and shows up the granules in diphtheria bacilli exceptionally well.—A. G. Nicholls, *Jour. Lab. Clin. Med.*, 7, 180, (1921); *Jour. A. M. A.*, 78, 244, (1922).

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Study of Hemoglobinophilic Bacteria.—From the investigation of thirty-eight strains of B. influenzae obtained from hospital patients during nonepidemic periods the conclusions are drawn by the authors that nearly all strains of B. influenzae possess a serologic individuality as determined by agglutination and agglutinin absorption. Identical strains do occur, but they are not frequent. The antigenic value of strains varies. Some are extremely narrow. The serum prepared from such strains agglutinated little more than the homologous organism. The morphologic variations are marked, but do not correspond to variations in agglutination. Two or more serologic races may be present in the same patient. The results were in accord with those from other laboratories. —H. B. Maitland and G. C. Cameron, *Brit. Jour. Exp. Path.*, 2, 283 (1921); *Jour. A. M. A.*, 78, 246, (1922).

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The Isolation of Koch's Bacillus from Tuberculosis Sputum by Petroff's Method.—The method, which has been used successfully for six years, possesses the great advantage of enabling one to cultivate the bacilli direct from the sputum, instead of having to resort to preliminary animal passage. Briefly, the technic consists in digesting the sputum at 37° C. with 4 per cent sodium hydrate till it is reduced to a perfectly fluid consistency. After centrifugalization, the supernatant fluid is pipetted off, and three or four drops of the sediment are sown on to a few tubes of Petroff's medium, which is made by adding a 1 in 10,000 solution of gentian violet to a mixture of egg with glycerin veal broth. The treatment with soda suffices to dispose of the majority of the organisms likely to be encountered in the sputum, while the more resistant ones are prevented from developing by the action of the gentian violet. The author states that in every case in which tubercle bacilli were found by microscopic examination of the sputum after digestion, he was successful in growing the organism in at least two of the culture tubes inoculated out of the five put up.—Limousin, *Ann. de l'Institut Pasteur*, August, 1921; *Brit. Med. Jour.*, Nov. 12, 1921.

The Excretion of Arsenic After Serial Administration of Arsphenamin and Neo-Arsphenamin.—Arsenic appears in the urine within a few hours after intravenous injection of arsphenamin or neo-arsphenamin. The maximum excretion occurs on the day of or the day after injection. In a series of injections, the maximum excretion is higher with each succeeding dose. In a series of injection, the percentage of arsenic excreted is small in the first interval in both urine and feces, and increases in each injection with each succeeding dose and interval. Arsenic appears in the feces more slowly, but within three or four days after intravenous injection. In a series of injections the total percentage of arsenic excreted in the feces is larger than in the urine, being as high as 53.76 per cent in one week. There is no relation between the amount of arsenic excreted and the quantity of urine or feces. These facts are interpreted to mean that, in the early intervals of the serial treatment with arsphenamin and neo-arsphenamin, the arsenic compounds are retained in the body up to a point at which the tissues are, as it were, saturated with them. When this point has been reached, further additions of the arsenical preparations are in large measure quickly eliminated from the body. If this interpretation is correct, it would seem logical to modify the serial treatment to the extent that smaller doses may be given when the point of saturation has been reached, unless it is at this point that the initial beneficial influence is exerted. Although further study is necessary before a positive conclusion may be drawn, it would appear that the point of saturation is attained at about the fourth injection.—Frank P. Underhill and Staton H. Davis, *Arch. Derm. Syph.*, 5, 40, (1922).

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The Elimination of Arsphenamin and Neo-Arsphenamin in the Urine.—The Abelin test seems to be of real value. This opinion is quite generally shared by those who have employed it. The test is as follows: To 5 c.c. of urine, fresh or preserved with chloroform, in test tube 1, cooled in running water or the icebox, are added 0.5 c.c. of the hydrochloric acid solution and 1 c.c. of sodium nitrite solution. The mixture is well shaken and kept cool until the reaction is complete (about ten minutes). In test tube 2, a fresh mixture of 4 c.c. resorcin so-

lution with 1 c.c. sodium hydroxid solution is prepared. Following Abelin's method, the contents of test tube 1 are added to that of test tube 2 and well shaken, producing a distinct red in the presence of arsphenamin in fairly large amounts and a brown, clear colored solution in the absence of this substance, which soon extends throughout the upper stratum. In this investigation the authors used the ring test. In order to carry it out successfully, the urine is transferred by means of a 5 c.c. pipet from test tube 1 to test tube 2, which is placed in a slanted position to avoid mixing the two solutions. Two distinct layers are formed with an intervening stratum of pink to red, depending on the amount of arsphenamin present; in the absence of arsphenamin no colored ring develops between the two layers. By comparing this colored zone with that produced by solutions of arsphenamin or neoarsphenamin in known quantities in urine the approximate amount excreted can be determined. The slightly modified Abelin test, as employed by the authors, is readily and successfully applied for quantitative results without much difficulty or expense. The sensitiveness of the test is very great. It is only positive in the presence of arsphenamin and its derivatives, the quantity being approximately indicated by the color of the ring. Other chemical substances of the benzene series which may be eliminated did not furnish any positive reactions. Urine from cases of pneumonia, nephritis, rheumatism and gonorrhea did not furnish any positive reactions with this resorcin reaction. The elimination of arsphenamin and its derivatives by way of the urinary tract was slower in most of the authors' cases than in Abelin's series. It was usually complete or nearly so within twenty-four hours after injection. A number of cases tested at later intervals gave, with the exception of those mentioned, uniformly negative findings. Elimination was especially prolonged in the authors' cases of tertiary syphilis and neurosyphilis. The apparently early elimination of these drugs would seem, in certain cases at least, to warrant a shorter interval between injections, as has been suggested by Pollitzer, Sicard and others. In cases of apparent nonelimination of the drug evidenced by a persistently negative Abelin reaction one should, as Leredde suggests, make a careful examination of the patient before continuing with the treatment. Elimination seems to be subject to the influence of a number of factors, among them: (a) the dose injected, (b) the solvent employed, (c) previous treatment, especially by arsphenamin or its derivatives, (d) dietary indiscretion soon after treatment, (e) the personal element. Elimination does not always proceed in a rhythmical manner.—B. Barker Beeson and P. G. Albrecht, *Arch. Derm. Syph.*, 5, 51 (1922).

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Standardization of Biological Stains.—The need of standardizing stains for biological purposes has become increasingly evident during the last four or five years. German stains have been difficult to obtain, or entirely unavailable, and the American products vary so much, one from the other, that they give uncertain results. An interest has been awakened in bacteriologists toward securing domestic stains better than their foreign predecessors.

Under the auspices of the National Research Council, a conference was held at the Chemist's Club, New York City, in November, to discuss the standardization of biological stains and the steps to be taken to develop a reliable American supply. Besides the National Research Council, other organizations represented were: the American Society of Zoologists, the U. S. Department of Agriculture, the Chemical Foundation, the Botanical Society of America, the Society of American Bacteriologists, and the Will Corporation.

H. J. Conn of the Bacteriological Society, stated what had been accomplished among the members of his society during the past year. He stated that stains must be standardized by three different methods: By chemical analysis, by testing for bacterial staining, and by testing for histological purposes. So far as bacterial staining is concerned, he considered his Society to be already in a position to select satisfactory samples of basic fuchsin and methylene blue, and believed that the work now in progress on gentian violet would soon lead to a similar result in regard to that stain. The chemical and histological work still remained to be done. Other bacteriologists agreed that samples that were satisfactory for bacterial staining did not give good results in cytological or histological staining.

To further work along these lines a committee was appointed to function under the

Division of Biology and Agriculture of the National Research Council, with the Division of Medicine coöperating. The Chemical Foundation of New York City has agreed to support the undertaking, and has already deposited with the treasurer of the National Research Council a check for $500.—*Science*, January 13, 1922, Vol. lv, No. 1411.

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Internationalizing Sera Standards.—Confusion due to the various national standards of measuring the strength of antitoxic sera for diseases has been a great handicap to men of science in their study of treatment of different vital diseases. The Health Committee of the League of Nations, at an international conference at London in December, adopted a program which aims at the unification of international standards of antitoxic sera. The coöperation of the foremost laboratories of the world has been secured and work has already been begun. The United States has agreed to coöperate through the United States Public Health Service, and to the Hygienic Laboratory at Washington has been allocated the study of tetanus and diphtheria antitoxins.—*Science*, January 13, 1922, Vol. lv, No. 1411.

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CONVENTIONS, CONFERENCES AND MEETINGS

This calendar is published through the coöperation of the National Health Council, 370 Seventh Ave., New York City. The Council will be glad to answer promptly any written or telegraphic inquiries regarding meeting dates in order to avoid conflicts.

Mar. 6-8, Federation of State Medical Boards of U. S., Congress Hotel, Chicago, Ill.

Mar. 6-9, Association of American Medical Colleges, Congress Hotel, Chicago, Ill.

Mar. 6-10, Annual Congress on Medical Education and Licensure, A. M. A., Congress Hotel, Chicago, Ill.

Mar. 14-15, U. S. Public Health Service Conference on Public Health and Education of Health Officers, Washington, D. C.

Apr. 3-8, American Congress on Internal Medicine, Hotel Kahler, Rochester, Minn.

Apr. 5, Utah Public Health Association, Hotel Utah, Salt Lake City, Utah.

Apr. 10-15, Oregon Annual Conference of City and County Health Officers, Multnomah Hotel, Portland, Ore.

Apr. 17, North Carolina Public Health Association, Winston-Salem, N. C.

Apr. 17-22, New Jersey Conference State and Local Boards of Health, Trenton State House, Trenton, N. J.

Apr. 26-28, American Urological Association, Atlantic City, N. J.

Apr. 29, National Research Council, Division Medical Sciences, Washington, D. C.

May 1-2, American Therapeutic Society, Arlington Hotel, Washington, D. C.

May 1-3, American Pediatric Society, Washington, D. C.

May 1-3, American Gynecological Society, Washington Hotel, Washington, D. C.

May 2-4, American Orthopedic Association, Hotel Washington, Washington, D. C.

May 2-3, American Neurological Association, Washington, D. C.

May 2-4, American Dermatological Association, Washington, D. C.

May 2-3, Association of American Physicians, Hotel Raleigh, Washington, D. C.

May 3, New York State Association of Public Health Laboratories, Albany, N. Y.

May 3-6, American Physical Education Association, Detroit, Mich.

May 4-6, National Tuberculosis Association, Washington, D. C.

May 8-11, American Society of Mechanical Engineers, spring meeting, Atlanta, Georgia.

May 15-19, American Water Works Association, Bellevue-Stratford, Philadelphia, Pa.

May 16-18, Illinois Medical Society, Mt. Vernon, Ill.

May 22-26, American Medical Association, St. Louis, Mo.

June 21, National Conference of Jewish Social Service, Providence, R. I.

June 22-29, National Conference of Social Work, New Biltmore, Providence, R. I.

June 22-24, American Association for the Advancement of Science, summer meeting, Salt Lake City, Utah.

Biennial Congress on Nursing:

June 26-30, American Nurses' Association, Seattle, Wash.

June 26-30, National League for Nursing Education, Seattle, Wash.

June 26-31, National Organization for Public Health Nursing, Seattle, Wash.

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Vol. XII APRIL, 1922 No. 4

SYMPOSIUM ON MOTION PICTURES

Including the principal discussions given at the first session of the Health Education and Publicity Group, Fiftieth Annual Meeting, American Public Health Association, New York City, November 14, 1921

Introductory Remarks

E. G. Routzahn, *Chairman*

Department of Surveys and Exhibits, Russell Sage Foundation, New York City

There are two main problems in utilizing motion pictures in health education and publicity: First, production of pictures; second, distribution and use of the pictures. Either of these problems offers a range of topics for discussion sufficient for more hours than we have to give to the entire subject of motion pictures. Hence the committee planned to limit the program to a few aspects of the production situation.

As to distribution, the chairman would call attention to the need of study and the need, probably, of concerted action in order to work out the problems of distribution and of wide and efficient use of pictures. Briefly, while there is a considerable number of good health films in existence, it is nevertheless true that the many workers in the health field have available at any given time and place so few pictures from which to make a choice that they are frequently willing to take anything that is offered. And not a few of the films offered them are so badly arranged, or out of date, or mixed with advertising, or containing errors of fact or of instruction, that one is inclined to urge that their use can be of very little gain to the health movement.

Turning to production, to which we will give our attention, I would urge that in many cases there should be four parties to the production of a health motion picture. One is the producer; the second is the agency which is to get it out, that supplies the basic material; third, a group of people to try it out on before it is put on the market, as advertisers more and more are trying out their printed matter and their merchandise on would-be consumers. Sometime we may find in our convention program a chance for discussing how advertisers test out even the packages that they put their goods in, how they test them out upon people who buy them, how they find out what arguments will win in the selling of coffee or something else of that sort. We have not begun to do that in the health field. Possibly it is the thing we ought to do in connection with the motion-picture production.

Fourth, is the man who is neither the producer nor an agency, but who understands the problems of the two and can

help them see what either or both do not see, and possibly help to explain one to the other. The difficulty I have found in some cases is that the producer is not able to understand the health worker and the health worker does not see what the producer means. They sometimes use similar words without meaning the same things. Or they have the same ideas but use different terminology. In the confusion neither producer nor health agency does the best work on the picture. Now, if they can go outside of their own ranks and get some one to view that picture in various stages, although they may not always follow his advice they are very likely to get some help in working it all out. This fourth man should have a degree of sympathetic knowledge of the technique, limitations, and ideals of both the producer and the health agency.

The aim of this session is not to give final answers to the questions which will be discussed, but rather to get those questions fully before us. Then we may expect that during this year as we go about our work in various cities we will give some thought in common to both the questions and the answers which will be given to-day.

QUESTION I

"Should there be any difference in the type of picture produced for classroom use and that for popular education?"

PROFESSOR C. E. TURNER

Department of Biology and Public Health, Massachusetts Institute of Technology, Cambridge, Mass.

The motion pictures which deal with health education may perhaps be divided into four types. There is the long drama, which introduces into a lot of human interest certain health information and which is distributable through the motion picture theatres. Such a film, which can put across health information, just as our best playwrights have put across moral ideals or sociologic information is a useful product, but obviously we cannot use that in the classroom. We have not the time to entertain children in school hours.

The second type of picture is the type which might be called a propaganda film, a picture which is made by some private organization and which shows the people who view the picture why they should be enthusiastically interested in that particular organization, whether it deals with infant welfare or child hygiene, or whatever it may be—a perfectly legitimate and useful type of picture.

In the same group, you might put the advertising picture which advertises a particular brand of milk or food because it is a highly valuable or sanitary food. This is also useful, but it has no place in the public-school program. The educational authorities cannot carry on propaganda for any company or for any product.

The third type is not a propaganda picture, in that the health information which it gives is generally accepted scientific information which is prepared for a general audience, rather than to fit the school curriculum. The only possible question as to whether any of the first three types should be used in the schools, centers about this film.

The fourth type is the picture prepared for school use—a class film, a school film, which I believe is distinctly different from the films used in the education of the general public. In the film for popular education, you must appeal to the interest of the audience. Otherwise, they won't come again. In the case of the school child, he is there, on the job to learn. That is his business, to get information, and it is not necessary to make an appeal to his interests to maintain his attention. He is given prelim-

inary material and the motion picture is followed up by other instruction. No one thinks that the motion picture is to take the place of the teacher. It is merely an auxiliary.

In making a picture, you must produce either for the general public, or for a special group. That is, just as in writing a book, you must have in mind clearly the audience which is going to receive the information you are trying to present, and you cannot do everything in a thousand feet of reel. You cannot present a drama, an interesting story, a lot of propaganda, and a lot of detailed information suitable for all kinds of people in a single film. You have to sacrifice some of those characteristics if you would carry others essentially valuable. And the film for school service should be made for a definite group, and should have the instructional point of view.

It should present simply one or two fundamental facts, just as in preparing a lesson, the teacher attempts to put over one or two fundamental facts. It should be prepared for the group of students that is ready for that information. If you are preparing a film on the nature of bacteria, you may be preparing it for a group that has a certain fundamental background, but has not been trained, or has never seen bacteria. If you are preparing a film on the diagnosis of diphtheria, you are preparing a film for students who have additional information and are ready for the particular point you are ready to present. You assume the information which they already have and proceed in a logical fashion from that point.

Now, I believe it sometimes happens that a film which is prepared for school use may be useful elsewhere. If the health officer is going to talk to a group of people on sanitation and he wants to show them what bacteria are like, and an educational picture is obtainable for the purpose which fits into the teaching which he is doing for the moment, he is giving the material to a class of people that are ready for that particular information and it fits in very well. But the business of education is such, in my belief, that we ought to provide a systematic health-instruction program throughout our schools, adapting the material in each grade for the pupils in that grade. We ought to be just as careful to save the time of the pupil and present concisely the information which the pupil ought to have at that particular time in the picture as we are in the text-book, and the public school is not, it seems to me, in a position to receive pictures that are produced for other purposes or groups, and do not fit into its program. Just as we are trying to get away from the occasional talks on health by the public-health nurse and introduce constructive, organized, unified health instruction, so we ought to get away from the idea that we can grab up any health educational picture which happens to be available, fit it into any particular class which happens to have a half hour to see it, and fool ourselves with the idea that we are using the time of the pupil to the best advantage. I believe that we ought to recognize and very clearly that the job of producing films for the school child is a different sort of a job from that of producing any of the other three varieties of films which I have mentioned which are primarily for the general audience.

QUESTION II

"What standard should be set for the pictures used by health agencies?"

STANLEY OSBORN, M. D.

State Department of Health, New Haven, Conn.

Whatever standards we may decide upon, it would seem important first of all for the health agency to view a picture not from the standpoint of the scientific man but from that of the public which is to see it. We may imagine this public as composed of persons whose standard of knowledge is about that of a grammar school graduate or slightly higher.

On the whole, it seems to me that a large share of the pictures that we have now are too advanced for the public that we attempt to reach. Most of us view pictures from our own standpoint, saying they are good or bad according to whether or not they appeal to us, rather than trying to put ourselves in the position of persons of eighth-grade or first- or second-year high-school education that make up the public we are trying to educate.

As to physical standards, many films are shown that are in a deplorable condition. I feel that we ought to go on record as opposed to the showing of any films that are streaky or are injured by age because these conditions detract indirectly from the educational value of the picture. The public nowadays even in ordinary picture houses demands a picture that is flickerless and that can be watched without straining the eyes.

As to the thought presented by a film, it should have only one major point. If we take the subject of diphtheria, we should treat one phase of it in a film and it should be at most a one- or two-reel film. Our audiences will not stand for four- or five-reel films containing many minor details. The short film with a punch may put over the fact that diphtheria or any respiratory disease is spread from the nose and mouth. If the subject is the reduction of infant mortality, it is far better to treat simply one phase of that in simple fashion than to attempt a long film covering the whole subject.

The standards of language of the film I think can be popularized. Of course we would not desire to use slang in a health picture, but we could use simpler names than bacillus or treponema to an extent that we do not do now, rather than to seek to produce titles that are difficult for the audience to understand.

EDWARD STUART

American Red Cross, Washington, D. C.

Is it possible or practicable to set a standard for motion pictures used by health agencies? If so, what are the various points to be considered?

It seems to me that the standards divide themselves roughly into two groups. The first are those which should be determined by health workers and specialists in the various fields of health. The other set of standards should be required by the producers and agencies who wish to make acceptable films.

The first group of standards includes technical accuracy. We all, of course, want technical accuracy, and it may be that it can be best obtained by coöperation among health agencies. It also includes the questions which have already been taken up of how long a film should be and what should be the proportion of propaganda and story.

In regard to technical accuracy, it is something that we are all working for. I hope that the day is past when we shall receive such films as the one which was shown to the entire A. E. F. in France, giving the information that tuberculosis in adults is diagnosed by means of tuberculin. I think that the danger of producing such films is past.

The second general set of standards covers photography, acting, lighting, the

physical condition of films, and similar points.

Photography has greatly improved in the last ten years, and the public has come to demand good photography. The public has been educated by seeing the excellent photography in commercial films, and it is the best judge now.

The same is to be said of lighting. I think the lighting in the production of a film is just as important as photography. We perhaps can try to get away from poor lighting by being more liberal in paying for the production of a film. There was a society in England which recently produced a film on venereal disease for a few hundred dollars. They did everything possible to make this film as cheap as possible. The result was, they had very poor lighting. The faces of the actors were very often black, and the whole result of a fairly good story with valuable points on venereal diseases was lost to a large extent.

Then there is the matter of acting. We should try to avoid employing amateur actors. There is one film I know of that has been shown a great deal during the last two or three years in which one of the principal characters was an amateur and the results were laughable. Of course, we must make sure if possible, that doctors take the part of doctors; the same is true of nurses or other technicians. They are natural actors in their particular field. We can use them for their particular parts, and have actors for the purely histrionic roles.

In passing upon health films, who should be the judge? If you submit pictures to some doctors, they are likely to object to some points which they are not agreed upon, and condemn the film, or they lose sight of the purpose of the film. I know of a film on tuberculosis that gives a rough sketch of the general points of a medical examination for tuberculosis. Unfortunately, when they made the film, they could not get a medical man to do the actual work, but they had an actor who was coached by doctors. As far as the public was concerned, they learned what the principal points of an examination for tuberculosis consisted of. However, a group of doctors saw that film, and they said, "Why we can see right away that that actor is not a doctor," and they condemned the film. They should not lose sight of the main purpose for which the film was made.

In my opinion there should be a central group under some such organization as the American Public Health Association or the National Health Council, composed of health workers who have had sufficient experience with motion-picture films to realize the difficulties and possibilities, and who can call upon experts in various fields to help them in judging the technical accuracy of the films. This group should be a clearing house of information on health films. It should advise health agencies in regard to methods to be employed and should have an intimate contact with the entire motion-picture industry.

CARLYLE ELLIS

New York City

Apparently, we are all agreed that standards are necessary, and that the standards should be a good deal higher than they are to-day. It seems to me that there is a question which we can ask of all films of any kind, that will help to set this standard. It is almost the primary question: Does the film clearly, truthfully and interestingly set forth an idea worth presenting? If it does, it is worth showing. As a producer, I don't believe that poor photography is excusable, or poor lighting is excusable, or that films in bad physical condition should be issued, but I might permit all of those if I could insure the primary requirement that the film show an idea clearly, truthfully, which is to say with technical accuracy, and so that it will interest people.

I am going to cite to you two rules that I think should be held in mind by those who are using films, as well as by the producer. These rules are primary and apply to any kind of a film or any dramatic presentation. The first rule has already been emphasized. It is to state one thing at a time and let it relate to the preceding fact, enlarging it and enriching it, and let each fact relate to a main theme, which you should have clearly in mind. That is about the simplest rule for dramatic construction of any kind that we can get to. The second rule is that if there is opposition of ideas, such for example as the right and effective way to do a thing, and a bad way, placed consecutively in contrast to each other, it increases the interest, and this dramatization, however simple it is, increases the conviction carried by the facts. After all, I do not believe that even in our technical health work the mere cold statement of facts is all that we require. We should be able to state our facts with conviction, because the emotional response, even in instructional work, is an important element in education, and however technical our audience, the color of contrasts is of value. Of course that can be carried on to the point where we have what is known as a drama, that is, a story or narrative.

My other thought is for singleness of purpose in the making of a film. Diffuseness has probably destroyed the value of more motion pictures than any other one quality. I know it has spoiled films of my own when I was not morally courageous enough to fight for what I knew to be necessary. The singleness of purpose, the sticking to a single theme, is important. Diffuseness weakens your element of conviction. It weakens the force of your facts, and that of course is true of any big drama as well as of a film primarily educational.

One thing that the producer finds in so many clients is a belief that he can get their entire program into a single film. This department must be represented, and that activity must be represented, and the whole country. There are so many things that they know are useful and excellent that they try to get them all in. But they must sacrifice some things for the sake of force and clarity. I think that is the basis of it all, that we must have singleness of purpose and hew to the line on that.

I have already said that there are certain mechanical elements which should go without saying. Poor photography, I say to you as a producer, is inexcusable. The film now on the market is of the highest quality. The cameras are quite adequate, and poor photography merely means that inefficient people have been put on a job.

The question of titles has been touched on, and I can merely repeat that there is no excuse for either ill-spelled or ungrammatical titles. Prosy titles are the death of a great many films. Boiling down to definite essentials is hard editorial work. That is work that should not be required of the person ordering the film. It should be required of the producer. That is his job and he ought to have people who know how to do it. You should know how concisely you can have your titles made for the very important reason that the shorter the wording of your titles and the less space you spend in saying things, the more space you can spend, the more footage you have for picture statement. The ideal picture is one in which the greatest possible part of your story is stated in picture form. That is the fault of a great many technical films; especially of a great many health films. I have seen many films where page after page from text-books was quoted on the film until it was boring in the extreme.

As serviceable films made specifically to show a right idea in health become available, we won't have to use the so-called industrial film, the real purpose of which is to sell some article in trade.

Of course, it is a fine thing to have a rich manufacturer come along and say, "I will make a film for you. I will sell this perfectly good idea, and of course, I will mention my goods in it." The mentioning of the goods need not be harmful and may not be a bad thing to do, but it is almost inevitable that he will put the accent somewhere outside of the bull's-eye, and in the making of a health film especially, the accent should be on the bull's-eye and not on the man's goods. So let us all hope that the time is coming when we won't have to use an industrial film to teach a health lesson. In the meantime, we should not reject them, but we must decide each particular case on its merits and help to raise the existing standards by earnestly seeking and using the best films to be had.

QUESTION III

"What are the needs in health motion pictures that are not met at present?"

DR. ERNST C. MEYER
International Health Board, New York City

It so happens that we have made one picture on the hookworm. I have been told that it sometimes makes the Southern cotton planters get the willies when they see it. It seems to be helping to do its work, but I have no particular credit in that; I am appearing before you as an utter layman.

I have seen many health films, a good many of them, and I have watched audiences that were seeing health films, and believe with most of you here, I suppose, that there is a great field for the health film, whether short or long.

I have a feeling, however, that one phase of the production may have been neglected to a certain degree, and that is the cartoon film—the animated drawing. We, of course, know there are a good many films now that contain animated drawings. The American Social Hygiene Association has been one of its most extensive users, and to great advantage. I recently saw a picture on "How Life Begins" in which the animated drawings are a very essential part of the film and without them a great deal of value would be lost.

I want to call your attention to the possibilities of the cartoon film, the animated-drawing film, because it seems to meet certain requirements that are difficult to get in any other way. For one thing, you can have it produced at any time, at any place, under all conditions of weather, provided you have the information you want to embody in the film and you have the artist who can draw your pictures. Having those two things, you can go ahead and get your film at once.

Another thing, you know pretty well what it is going to cost you. The prices vary from two and a half to six dollars a foot and sometimes more according to the complexity of the scenes. By sketching the plan you have in mind, the subject you wish to cover, you can get a very accurate estimate of the cost of the film in advance.

Now another advantage, and it is a considerable one, in view of the quality of some of the amateur films that are out on the market, is the character of the lighting. The technical side of the cartoon film is always perfect. Many amateur films depending on photography under ordinary conditions of light show up poorly. Those conditions never exist in the case of the cartoon film. It is always clear and sharp.

Now there are a few disadvantages. There always are. For one thing, if the artist overdraws the thing he is trying to show, he may burlesque it for you, and instead of getting your lesson across, he will get the people to laugh at the thing, which might be amusing but does not accomplish what you have in mind. And another serious one is the fact that an animated drawing, being just an artificial

creation, is not convincing. It is a fake, and being a fake, it is sometimes difficult to prove to the unsuspecting person who sees the picture that this wonderful thing can really happen in nature.

Now if you can say, "This thing actually happened just that way in nature and here is the photograph of it," it is apt to be more convincing.

H. E. KLEINSCHMIDT, M. D.

American Social Hygiene Association, New York City

If I may hang over from the previous subject, I'd like to say just a word or two on "Who shall make the motion picture, the health worker or the professional motion-picture man?" It is a question sometimes. As has been said before, it is difficult frequently for the professional motion-picture man to get the viewpoint of the health worker. So far as our work in the American Social Hygiene Association is concerned, we have found it more successful to study the motion-picture man's methods, to learn some of his tricks, and apply them ourselves. In other words, put the health work foremost and the motion-picture technique in second place. This plan has not always been successful and some of our experiments have failed dismally. On the other hand, we have learned much and we have succeeded fairly well with other pictures.

After all, the making of motion pictures is not so very complicated, and with the assistance of a good technician, I think the health worker can succeed in producing good pictures. Necessity is the mother of invention and it was necessity which led us to enter the field of making motion pictures. It was during the war when the lecturers were trying to reach the soldiers and tell them something about the dangers of venereal diseases. Charts did not do it, and lectures did not do it, and so we resorted to the animated diagram and produced a picture called "Venereal Diseases," which was used in the army and the navy. As time went on, we gained more experience and improved somewhat on the technique.

The commercial producer and distributor have felt that there must be something in the picture to carry it over to the people—in other words, a story or drama. I don't think that is necessary. I think that we can make successful educational motion pictures devoid of all dramatic appeal.

A text-book is not always the most interesting thing to read, but it carries more information than does the novel, and so we have confined ourselves, not entirely, but almost exclusively to the instructional educational motion picture. The pictures which we have are scientific in nature, very simple, and consist largely of animated diagrams. Health workers make a mistake, I think, when they attempt to make a picture interesting and true, and then resort to the arts of the dramatists to put the story over. Personally, I believe that an instructional educational picture can be produced which will be interesting and informative as well. And even though it does not draw the crowds, even if it does not attract everybody, that does not prove that the picture is not a success.

I wish to reiterate what the previous speaker said about animated diagrams. We find them most successful. One thing he did not mention, and that was the factor of simplicity in an animated diagram. With an animated diagram one should leave out all extraneous matter. That cannot always be done in photography. In conveying an idea of physiology or pathology it is quite essential to remove the details which confuse the person who sees the picture. So the keynote of success in making an animated diagram, I think, is simplicity.

Is the animated diagram a "fake?" I hardly think it is, because it is perfectly obvious that these pictures are frankly schematic. There is no attempt to make them lifelike or realistic. It is

like an architect drawing his plans, like one making a rough sketch. There is no deception involved and I think that the average person will not be swayed by the fact that these are not taken from actual life.

After all, the motion-picture public is "wise" to fakery. Conversely, some of the pictures that seem very realistic and true to life we know to be fakes, and the audience knows it.

One difficulty about the animated diagram which we have experienced is that of translating them for foreign countries. Frequently, we are called upon to supply our films for other countries with Spanish, French, or Russian titles. The subtitles can be translated very easily, but the titles of the animated diagrams are incorporated into the picture itself, and of course, once made, they cannot be changed.

I might say further that most of the pictures which our Association has produced are not intended to be self-explanatory. I don't know whether that point has been touched upon before or not. A picture circulating through the ordinary commercial channels must be self-explanatory, but we depend, more or less, upon having a competent speaker to explain the picture, and it is most helpful to have some one who can give an introduction and fill in the intervals between the reels.

QUESTION IV

"How can health departments and health organizations work together to have suitable pictures produced?"

P. P. JACOBS, PH. D.

National Tuberculosis Association, New York City

Health associations and health departments can coöperate, first of all, in producing pictures by jointly pooling their cash, and secondly they can coöperate by jointly pooling their information. The question boils itself down in the first place to, "How much money do you have?" The very fact that not one of the motion picture producers who sits before me, that none of the motion-picture producers in New York or anywhere else in the United States is willing on his own risk and with his own money to produce health motion pictures and put them on the market for distribution, is self-sufficient proof that there is no money in producing health pictures.

It stands to reason, therefore, that somebody, some good friends of the health-picture proposition have to dig down in their pockets and produce pictures on a non-paying basis, just as the National Tuberculosis Association has done, for example. We have produced pictures not with any idea of making money, but simply with the idea of getting back what we put in them.

The producer could not afford to do that. He would go out of business in two weeks if he attempted to do it. Now that is the very proposition that we are confronted with. They don't say, "Come on, sure, we will produce a picture. Here is your subject. You just tell us what you want to do and we will put our money into it and when we are through, we will give you the full benefit of it." Not at all. I never saw any producer do that, and if you ever heard of one, please let him step forward immediately and take me by the hand.

Now, then, in the very nature of the case it means that if health associations and health departments are interested at all in a proposition of this sort, if they are going to coöperate in the actual production of motion pictures, they have to pool their cash. If they are

going to coöperate in seeing that somebody else produces it, they will either have to pool their cash or guarantee the producer a market for a minimum number of prints. That is the only way he gets his money out. The man who invests his money in a picture has to see a market for a minimum number of prints before he goes ahead and produces a film.

Now the average producer of motion pictures who produces them for theatrical purposes is interested in making pictures, because he has to make a living out of it and pay the dividends to his company also. A few years ago, we went to the Universal, and presented to them a very interesting story. They produced it in four reels. They said to us, "You get in behind us and push this picture," and we did. But the difficulty was that having put their money in it, they distorted the picture out of all reason, and so it was an atrocious production when they got through with it. It was something that we really could not crow about very loudly, and we were glad when it was worn out. In other words, the theatrical picture producer, who produces for a string of theaters or for a regular series of releases, has to get a picture that will appeal to the public. He says to you, "I am giving the public what it wants," and what the public wants, in his estimation, is the jazz type of picture or the sentimental drama with the sob scenes that you see on the ordinary motion-picture screen every day in the week. That is the kind of thing that he thinks he has to get over for you, and if he accepts a story from you, he will distort the educational part, as I said before, out of all reason.

On the other hand, you go to the average commercial producer of industrial pictures, so-called, the fellow who is not in the theatrical game, and he is producing primarily for non-theatrical houses. The only way in which he can produce it is for you to give him a cash guarantee or pay him a stipulated sum or guarantee to buy or to sell for him a certain number of prints. That is the only way in which you can get a picture taken of that sort.

That simply means, then, as I said before, that you have to pool your resources of cash, and then, also you have to pool your resources of information and your resources of wit in the preparation of a story. The average motion-picture scenario writer has about as much knowledge of tuberculosis as an ordinary bedbug. You take him into your office and you load him down with a lot of books. You talk to him until you are blue in the face and finally, he gets some conception of what you are trying to drive at and he prepares a synopsis of some sort of a story. Then you have to pick it to pieces painstakingly until you rewrite it and get something that you want. Now it takes some combined wit to do that kind of thing, and so the health departments and tuberculosis associations can get together and work to good advantage.

I have had some experience with folks who have tried to produce motion pictures in a way that they ought not to be produced, and I am fully convinced that it pays to put plenty of money into motion pictures. I believe that the principal reason why health pictures have not been a success is because we have been too stingy in our investment. We have tried to produce pictures with limited sums of money when we ought never to have attempted it. We have been just as guilty in the National Tuberculosis Association as anybody else in the field and probably more so, if I may say it.

If there are six or eight organizations that would like to get a picture on tuberculosis, or let us say, a picture on periodic medical examinations, probably the best way to work out a plan would be for some particular individual or organization to prepare the story or a scenario or a synopsis of a scenario and submit it to all those that might be interested, with

an estimate as to what it would cost. Say it would cost five thousand dollars; then all of the organizations would chip together in a common pot to produce the picture. That is about the only way I see that it can be done.

□

SYMPOSIUM ON HOW TO FURTHER PROGRESS IN HEALTH EDUCATION AND PUBLICITY

Including the principal discussions given at the second session of the Health Education and Publicity Group, Fiftieth Annual Meeting, American Public Health Association, New York City, November 15, 1921

INTRODUCTORY REMARKS

E. G. ROUTZAHN, *Chairman*

Department of Surveys and Exhibits, Russell Sage Foundation, New York City

The aim of the discussion is to set before us some of the problems of health workers in carrying information about health to the public and persuading them to accept it. This discussion looks forward to further meetings, when practical solutions to some of these problems will be proposed. In the meantime it seems worth while devoting a session to laying the groundwork by talking over what some of these problems are.

In nearly all the ratings for health departments that have been worked out, eight to ten points are allowed for health education, but in nearly all the schools that train for public-health work, not a point, and scarcely an hour are given to the subject of health education. In other words, we have not as yet really thought about this very large section of the public-health job as requiring observation and study.

This meeting has been planned somewhat as an introduction to the study of educational methods. With that idea in mind, it has been divided into four parts. The first has as its topic: What has been done in studying publicity methods? There seems to be a possibility of real suggestion and inspiration for all of us in seeing what has already been accomplished, what steps are being taken by some of the health organizations in testing and evaluating their publicity and education.

The second part will consist of examples and questions that will bring before us some of the problems that the members of this group especially wished to have solved. We shall be very careful not to waste any of our time now in telling how any one of us has solved or believes he has solved these problems. Our purpose is to have spread before us the problems themselves.

The third part takes up the possibility of utilizing the coming months for more detailed scrutiny of our methods and materials with a view to getting at some of the principles and practices which should guide us in planning publicity programs.

The fourth part which naturally follows this question is a consideration of the practical next steps in providing means for further study and discussion by those who believe that the subject deserves and requires such study.

QUESTION I

"What is being done to study methods in health education and publicity for adults and children?"

PSYCHOLOGICAL TESTS OF MOTION PICTURES AND PAMPHLETS

W. F. SNOW, M.D.

American Social Hygiene Association, New York City

It happened during the period of the war that I had occasion, on behalf of the Surgeon-General of the Army, to ask many experienced persons how they would go about conveying an idea, or an ideal, if you please, of physical fitness, to the men who were being drafted for service in the army.

Some of these were the advertising managers of newspapers; others were the billboard men of the country; others were the men who used other kinds of publicity, paid publicity in every sort of business enterprise—and they said, "Well, the first thing we suggest is that you scrap all your present methods of publicity."

We said, "That's fine; we are willing, but what would you put in place of it?"

They were not so ready with the second answer, and, when they had studied the material that the public-health departments and agencies had put together, they became a little less certain that we should scrap all of it. But we all came to question whether we knew what would influence the men. Out of that experience came, among other things, a committee with Professor Adolph Meyer of Johns Hopkins, Professor John B. Watson, and other psychiatrists and psychologists, to make a plan of study of motion pictures for the army in relation to the program against venereal diseases. That study was elaborated somewhat and included a study of other films among which was a film for women.

There is not time to describe the detail of how they studied this material, but the report has been printed and may be obtained by writing to the American Social Hygiene Association for it. This committee says in its report that only two important after effects upon behavior have been demonstrated from the study of these films. A few individuals are stimulated to active interest in sex hygiene campaigns and some seek to get repeated showings of the films or to obtain pamphlets or other propaganda material. They seem to be, for the most part, individuals who are already interested in the problem but who see in the performance an opening wedge for further work. A small number of men, in the belief that they may be infected, seek medical advice. The number of those that we were able to trace amounts to about one per cent of the total male audience. The retention tests show that the main facts—this is specifically in relation to the film "Fit to Fight," which many of you have seen—were remembered very well for periods up to five months, but there is no indication that behavior is modified significantly. The picture does not reduce the exposed rate of men who see it or make them more careful in the use of prophylaxis, except possibly for a few days. Nor did ill effects seem to persist to any greater extent. Interest dies out rapidly and the pictures seem to be forgotten as quickly as the average motion picture seen wholly for amusement.

Now, the statement I have made to you is taken from a psychologist's observations carried over two years' time, following up those men who saw the picture. The statement further reads that, while the dramatic portions of it do no active harm, it is doubtful whether they contribute to its educational value or add to its interest. Indirectly they cut down the space that can be devoted to informational topics and limit the informative value of the picture. There is a need for more comprehensive instruction than ap-

pears in this film. What I have given you illustrates the types of opinion that came out of these careful studies. The committee is still going on with its work.

The National Committee for Mental Hygiene published in a pamphlet, which you may also obtain by writing the Committee, the opinions of a large number of psychologists and psychiatrists in regard to the usefulness of the motion picture material, not only of the dramatic films, but of so-called educational films. I think it is at once apparent in reading these opinions that there is really no consensus of opinion, at least among the psychologists and psychiatrists on this point. There is a variance of opinion from the greatest pessimism to the greatest optimism in regard to the use of these films, and, consequently, that simply accents the need for a careful, methodical study of the influence of our various methods of so-called educational or informational-educational work and publicity.

Now, another committee which we have appointed which has been in operation for over a year comprises Professor Woodworth and other psychologists here at Columbia University, with representatives from other institutions. They have undertaken to evaluate the existing printed pamphlet material which is being circulated in combating venereal diseases and promoting the general social-hygiene campaign. That committee has not completed its report, but again indications are that somewhat the same findings will be made—that there is a definite memory retention period with most people and that, beyond that, the impression has to be repeated in some way or else its value has largely been lost except as a matter of providing some information for the individual.

I saw in the first days after the earthquake in San Francisco an illustration of what is meant by these psychologists. After the fire had swept over the city there were all sorts of hanging walls just about ready to drop. A rope was put up around these dangerous places and a sign warned people to "Go around this rope." For a few days everybody followed the rope. But after a week, the walls not having fallen, people became so intent on their business that they began to go under the ropes and under the walls and took their chances. They knew that the walls were unsafe, but they didn't pay any attention to the warnings. Once in a while a wall fell and somebody was hurt. Now, we see instances of that again and again. We begin to forget after a while the impression which is made on us and the importance of applying the information. We still have this information, but we are not applying it. That seems to be the thing that comes out of those studies.

There is not sufficient time for me to present the preliminary findings with regard to this study of pamphlet material, but it is encouraging to hear what this group of psychologists say. The excerpt to which I have reference states that a general inspection of the mass of data at hand has not revealed thus far any startling discoveries calling for radical changes in the pamphlet form of promoting sex hygiene and sex education. It gives promise rather of furnishing further evidence that the pamphlets filled certain needs and that they can accomplish their purpose in some measure. Whether the purposes they aim to accomplish are the ones best suited to the individual and social welfare is beyond the scope of this study.

In other words, the propaganda side of the work is not what we were after in these studies. We were trying to find out in this study and in some others we have started what ideas our publicity material conveys to the public. I am convinced from watching these studies, covering a period of three years, that it is just as possible, if we go at it carefully and scientifically, to evaluate what we are doing for the public through the printed word, the lantern slide and the moving

picture, as it is to find out what we are doing in classroom work, the laboratory and demonstration. But it is going to take study far beyond what has been done heretofore.

In the meantime, it seems every pamphlet and every motion picture we put out ought to be put out with the thought that it is experimental material which we are ready to scrap after making the investment the minute we can get the scientific information on which we can base a better program.

A STUDY OF METHODS OF CHILD WELFARE EDUCATION

COURTENAY DINWIDDIE
National Child Health Council, Washington, D. C.

The approach of the National Child Health Council to the question of health education and publicity is from a slightly different angle than that of some other organizations, in that it is mainly from the point of view of coördination.

Our most important advisory committee has been that on health education of school children. This committee has, in addition to the representatives of the three outstanding government departments, the Children's Bureau, the Public Health Service, and the Bureau of Education, delegates from fourteen other organizations, national in scope, and very directly concerning themselves either as their main effort or in some department, with the health of school children. In addition to that, outstanding educators and health experts who have thought in terms of education have been called in. Altogether, the committee includes practically thirty people qualified to speak in the field of health education of school children. That committee has organized and has been at work for a few months now, and while it is still in infancy, it has done some things which make us hopeful that it will be useful.

The first consideration of the committee was to adopt a platform. We found that there were many approaches to the subject—that of the nurse, the physician, the physical training teacher, the health lecturer, the general educators, and so on. The committee, therefore, proceeded to outline a statement of the principles that underlie any program of health education. I am not at liberty to give that statement as yet, because it is not ready for publication, but the committee has tentatively agreed upon such fundamental principles, and the very fact of that agreement, it seems to me, is one of the most hopeful things about it.

In addition to that, it has formed into various sub-committees that are at work on particular phases of the question. One committee is writing a statement on the various methods used in health teaching, dealing with the graphic and dramatic devices, the project method and other methods used by people who are expert in such matters. Another deals with the question of organization and administration, and that committee is actively at work on drawing an outline of the types of work that should be done in the schools, the organization that should be necessary to carry them out, and the correlation that should exist between the different parts of that organization and between the individuals in its personnel. Another on "Subject Matter" with Dr. Burnham as the chairman is engaged in preparing a statement, not of details, not of hard and fast curriculum, but of the subject matter in general terms that should be covered in any comprehensive and balanced program. Those committees, as I have said, have just begun to work. We feel encouraged in that their work so far has been more or less unanimous in its agreement.

A word as to the application of what the committees may do.

We have felt that, in addition to gathering together the opinions and experiences of various organizations and persons it was well to see that those opinions and experiences were made available in a practical way, and it is the intention of

organizations which are in the National Child Health Council to use the experience and advice of these committees in their actual field programs. The Council also wishes to see that they are made available to anyone else. They are working in the closest possible relation with the government departments. Again the health demonstration to be held in Mansfield, Ohio, the organization of which is now actively under way, will have the closest possible relationship to this body of consultants from whom we are drawing a wealth of past experience and of present knowledge.

One thing that has most impressed the members of the advisory committee of the Council is the fact that they are not drawing up a purely theoretical program to be either sent out in the mails or filed away, but that they are drawing up certain suggestions which will be offered where they will be tested by actual experience and in the light of conditions as they exist. The committee will look to Dr. Brown, the director of the demonstration, and to anyone who is engaged in practical field work, to see how far the principles that they may draw up do actually work out, to give them the "acid test" of real use.

THE EVALUATION OF PUBLIC HEALTH EDUCATION

W. L. DEALEY, PH.D.
U. S. Public Health Service, Washington, D. C.

Under the war impetus, public-health education to limit venereal diseases was initiated on a scale reaching millions of persons. The U. S. Public Health Service is now trying to evaluate this educational work in as exact social, psychological and medical terms as possible. As much forethought should be put into this evaluation as goes into carrying the campaign ahead. This evaluation of our educational work is itself educational. It becomes a systematic follow-up to combat the public's "curve of forgetting."

For example, after a social-hygiene field truck had toured five North Carolina counties, with a uniformed lecturer, motion pictures and literature, 3,000 questionnaires were sent into those districts. Replies were striking in the sense that the people themselves actually advised follow-up; they wanted the field car in other counties, and in their county at regular intervals. They wanted better advance publicity next time. From eighty to ninety per cent of them said venereal diseases had been more seriously and freely discussed since.

When these folks sat down and wrote the Public Health Service via its questionnaire, they became an active part of the program to limit venereal diseases. They identified themselves with it. In the same way with the social-hygiene talk, audiences of North Carolina men have regularly answered a short questionnaire before leaving. In the first 900 replies tabulated, 40 per cent say they have had gonorrhea; a third of these tell of no treatment by physicians; a third definitely say they had intercourse before the infection cleared. These and other interesting facts sharpen the educational work by picturing the exact situation.

Our most extensive questionnaire study is to focus on our card exhibits for boys and girls. This questionnaire will cause the boy to recall points stressed in the exhibit and express this through a manual motor response. Through his answers he will also analyze his own social and "substitution" interests. Tabulation of a more detailed schedule among 1,000 North Carolina boys, in coöperation with the Service, is for all purposes complete.

For a preliminary evaluation of posters, car cards and newspaper advertisements, the division is asking the assistance of advertising experts.

There are also advantages in using direct visits by volunteer workers. In the District of Columbia members of a recent institute on venereal disease con-

trol volunteered to visit the homes of one thousand mothers who have received pamphlets. This systematic follow-up with a printed schedule enlists in the ranks of public-health workers women who otherwise might hold merely an academic interest. For the sake of this result, the Public Health Service is glad to sacrifice the increased scientific accuracy which comes with using trained field workers. Denver women have volunteered to make a similar study.

The division is also conducting studies to provide more accurate facts for popularization in the form of a single keyed sheet spread broadcast through the mails. Mortality statistics for syphilis, for example, have remained so far behind medical advances that hardly more than seven thousand deaths a year are certified. Through a highly selected group of practitioners and pathologists the Service is preparing estimates of the extent to which syphilis is camouflaged under forty-five other causes of death. These will indicate that the true mortality is nearer seventy thousand deaths and tell in an authoritative way the relentless killing power of syphilis.

The educational effects of such researches begin at home upon the public-health movement personnel itself. Thus the educational stimulus of our questionnaires to all hospitals and prisons, asking the medical officers just what provision they make for venereal disease cases, routine Wassermanns and accurate records, may be roughly measured by comparison with the same questionnaires sent out a year from now.

Furthermore, in line with present activity in index numbers in the economic field, the division is building up indices of progress-statistics to show any decreases in acute cases in proportion to chronic cases; number of physicians reporting; laboratory examinations in proportion to positive Wassermann results. By showing the trend from year to year, such indices will measure very roughly our entire propaganda.

It is now the policy of our division to key all publicity material, where possible, in order that the response in terms of pamphlets written for can be statistically treated at odd moments. If all public-health workers would key their publicity material, where possible, evaluation would become automatic in many cases. It would move away from naive averages, to a freer use of modes, standard deviations, index numbers and regression coefficients, thus becoming more systematic and purposeful.

One other factor is involved, the coöperation of the research men in universities that already use these methods, the professors of advertising, of educational measurement, of psychology, of social sciences, with their graduate students ready to devote three interested years to one single problem.

In conclusion, educational research or evaluation is a functional thing. It frequently becomes educational follow-up in the best sense of learning by doing.

THE HEALTH FIELD USED AS A LABORATORY IN A STUDY OF PUBLICITY METHODS

MARY SWAIN ROUTZAHN
Russell Sage Foundation, New York City

The Department of Surveys and Exhibits is interested in the problem of bringing to the attention of social organizations information as to how social agencies can best present to the public the subjects they wish them to understand and how they can obtain a response to their propaganda.

In connection with that interest, we have been making a study in which we have used the health field as a laboratory, believing that the health organizations have made a great deal of progress in working out methods of making information interesting to the public.

Our interest has been primarily in the

publicity work that has been done with such objectives as raising money, getting legislation passed, modifying and forming opinion on particular questions, and modifying behavior, especially in the matter of health habits.

As that is a pretty broad field, we have been concerned with various ways of limiting it. In the first place, our study has concerned itself with the education of the adult. We have felt that the problem of teaching health to children in the schools is a question by itself and apart. We have been interested in the use of the various avenues for reaching grown people with whom there is no easy contact as there is with children in the school. We have also omitted to consider what was not within our province—the instruction given personally by the physician and the nurse to the patient.

From the whole field of public health we have selected for more special study three campaigns in which the education of the public has played an important part. Those were the campaigns against tuberculosis, infant mortality, and venereal disease. In this connection we have attempted to find out as fully as we could what current work and what recent work the national organizations concerned with these movements were carrying on, and how they were doing it. Because the country is pretty large, in the matter of state work and in the matter of local work we have made selections of particular state health departments and state health organizations, and in the same way city and county groups to visit, for obtaining some detailed information as to how the work was being carried on.

We have grouped the various forms of publicity under the three general headings of publication, graphic material and events, and have attempted to see how health organizations were reaching their public through each of these methods.

We have been particularly interested in finding any illustrations of what, for want of a better term, we have called the publicity project—to find the health organization in a city or in a state, or nationally, that is seeking to get over a particular idea, making a special problem of seeing that idea through until there is a reasonable certainty that it has made an impression on at least some one section of the public—a section that can be identified. Both Dr. Snow and Dr. Dealey referred to the great problem of follow-up, and the rapid downward "curve of forgetting." Planned education takes these factors into account.

An example of such a project has been the rural sanitation campaigns that were conducted in the South in which the objective—or, at least, one of the objectives—was that farmers should build sanitary privies. The educational work in each community continued until there was an actual count of the construction work that was its outcome.

We have also been gathering information on the question of how the job is and should be done. Who does the work of interpreting the health message to the public; where are properly equipped persons to be found; how are they trained and what are they accomplishing? Is it of primary importance that the person who interprets health to the public should thoroughly understand the subject matter, or is it of chief importance that he should understand how to make information interesting and what are the avenues to use? Is it practicable of a person of the latter type to work under the supervision of somebody who will make sure that the viewpoint and statements of fact that he gives out are correct? These are some of the questions that we have been asking of health workers.

Finally, we have sought experiences and opinions of health workers on the practicability of finding out what are the results of any particular piece of publicity. Can we evaluate our publicity work and so find out whether our methods are sound and that we are going in the right direction? Dr. Snow and Dr. Dealey have already given accounts of a few experiments in that direction.

QUESTION II

"What are some of the problems to be solved?"

WHAT SHOULD BE THE POLICY OF THE MONTHLY HEALTH BULLETIN?

B. R. RICKARDS

New York State Department of Health, Albany, New York

A survey of the monthly health bulletins of the various states and cities shows almost as many different policies as there are editors. Many of the bulletins are supposed to be for popular consumption, while others are addressed to public-health workers only.

As a matter of fact, do those monthly bulletins which are addressed to the public reach the general public? I do not believe they do.

In the case of New York state we have about five million people outside of Greater New York; our jurisdiction does not extend into New York City. At the present time the *Health News* has a circulation of nineteen thousand; it is sent very largely to public-health workers or those interested in some way in public health. Health officers, public-health nurses, nurses, physicians, registrars, representatives of voluntary organizations, libraries, and principals of schools make up a large part of the nineteen thousand circulation. It aims to supply the public-health worker with the latest information on all matters pertaining to his work, and by suitable articles, properly presented, it should seek to interest him in passing on the information to that portion of the public with which he comes in contact. To endeavor to have our health bulletins reach the public directly is hopeless on account of the excessive cost.

In order to find out whether a symposium or diversified articles were most desired, a questionnaire was recently sent out to the readers of the New York state *Health News*. About 95 per cent responded in favor of the symposium.

Notes from the field should form a part of every health bulletin, for by this means it is possible to let the worker who is isolated from his fellows know what is going on elsewhere along similar lines.

MARIE L. ROSE

Child Health Organization of America, New York City

My feeling is that one of the biggest problems is how to make health literature catch the reader. The need for literature and the demand for it is tremendous. The pressure that is being brought to bear on our organization is only part of the pressure that doubtless every organization doing similar work is feeling. We have many organizations preparing literature, but we find that this literature is not reaching the group that needs most to be reached—that there are certain groups that are practically untouched.

In considering the kind of literature that should be prepared, it would seem to me, first of all, that we must think in very simple terms. You will find in various parts of the country how weary people are with the tremendous amount of work they already have on their shoulders, and if we can get our point across quickly and very simply so that the mind and the eye, in the presentation of actual material, is not wearied or bored, it seems to me we have made great progress. In other words, the simplicity of the material, the form in which it is presented, seems most important. More than that, to stimulate the creative minds that surround us is important, too.

SOME PROBLEMS AS STATED FROM THE FLOOR

How are we going to get false information out of people's minds?

How can we see that speakers sent out to talk on health will not give incorrect information that health workers will later have to undo?

How can we reach the 97 per cent of the midwives who are too ignorant to attend classes?

How can we get other social agencies who reach individual people to be better informed on public health?

How can we develop a hygienic conscience in the school child?

How are we going to reach the teacher so that she may reach the child?

How are we going to teach people to be interested in learning about health without frightening them about sickness?

How are we to control the newspapers so that they will not quote information wrongly?

QUESTION III

"What can be done coöperatively during this year to study methods and materials?"

LAWRENCE MARCUS

National Health Council, New York City

I will merely state the problem and invite you all to consider methods of solving it and, in the course of the coming year, to help bring together the single straws to build up our structure.

A problem that I feel would have the interest of nearly every health officer here can be stated in this one sentence, "What can we do to interest business men in public health?" That is a very large assignment; in inelegant language it would be a "whale" of an assignment.

I have proposals as to procedure, at least for the first two or three steps. Others will suggest improvements, I know. I want to suggest that every health officer interested in this problem should participate in a study of it by carefully recording every step that is taken by him or her for the above purpose, that is, to interest business men in public health. If a health officer in California, for instance, has a problem in the course of his daily routine which brings him in contact with the business man at any point, will that health officer send to some central place which a committee can select copies of memoranda, rough drafts of the plan for getting at the business man, copies of speeches, newspaper clippings, anything which deals with the problem of touching the business man at any point and telling him about public health? Additional things that might be done in order to round out the tasks that each person here can assume for himself include the filing of samples of all form letters, printed matter, newspaper articles and the like. The committee would be glad to get addresses which bring out a technique for selling the business men the idea of public health.

Beyond that, the hope of a few of those who are interested is that next year we may have material collected which we may present to the American Public Health Association or any group that is most interested in the problem, together with a few tentative conclusions. I am thinking of the business men as a small group on whom we can swoop down, concentrating on them as a genuine example of what might be done with a group providing we approach a problem scientifically. The National Health Council, with the National Tuberculosis Association, has undertaken a campaign of educating the business men. We have got it down finer still—not only the business men, but the Rotarians, usually the prominent business men in each community. We are trying to sell to the Rotarians a "health week." That is a specific activity on which we may hope to have some sort of a specific report next year if you think kindly of this proposition. We are at present putting over a Rotary Health Week nationally. We are trying to "sell"—we are talking in the language of the business man because

we are thinking of the business man—we are trying to "sell" the business man a health week. He has to have the coöperation, as far as he can get it, of the health officers of the community. There is a specific proposition that has been started, and, with everybody putting his shoulders to the wheel, it may be made specific enough so that next year we may have some report.

QUESTION IV

"What can be done at the next convention to advance efficient work in health education and publicity?"

W. A. EVANS, M.D.

Chicago Tribune, Chicago, Illinois

The question is: "Shall there be a Section on Publicity and Education?" The difficulty lies in this, that there are more sections now than the finances of the Association will permit. Publishing the proceedings of the sections that we now have is proving difficult from the financial standpoint.

The Association has not seen fit to raise its dues; most associations have. We are finding great difficulty in living on the five dollar dues. That was a before-the-war due and it is about the only thing in America that is still on an ante-war basis.

Again it is not advantageous to divide the membership into too many groups. However, the basis for the decision on that question is the attendance of the group. You have here, I am sure, an attendance averaging more than 150; by actual count it reached almost 170 on two occasions. You seem to be meeting that requirement.

Now, is there anything to be discussed? There is no question but that there is need for health officers to learn salesmanship. Your real purpose is in persuading the people to change their habits. That can't be done, save as it is "sold" to the individual. In the entire field of medicine—counting this as one of the fields of medicine—there is no division of the profession save this that is in any way interested in salesmanship. You are recruited largely from the ranks of doctors with an inherent opposition to everything savoring of salesmanship. Therefore, you are as ignorant—I am speaking now largely of the medical profession—of the principles of salesmanship, however wise you may be, as an unborn babe.

As I see it, there is great need for deliberation—"round table" discussion, if you please—on the technique of presentation.

Let me put this thought before you. If you decide a thing as being correct this year, it does not by any means follow that it will be the best way to present it the year after next. Last year I had the opportunity of seeing a health exposition in which there were shown a number of old methods of presentation that were exceedingly valuable and effective in the Chicago Health Department some ten years before, but were just as useless in 1921 as they were useful in 1910. In consequence, you have to be constantly revising your technique if you are to get results.

I believe that you should at least have another program, and my advice is that you arrange for a program for next year, and if you can demonstrate a continuing interest—for every now and then something is evanescent—you will have no difficulty in proving your right to a section in spite of the difficulties that need to be overcome.

I suggest that your officers-elect appoint some committees to work on technical matter. I assume that there is not much need for propaganda discussions before this group of people; the very fact that you are here proves that you do not

need propaganda work. You are a group of people that I think we can consider as having been properly awakened to the importance or need of that which you are undertaking to do. Therefore, why stir you up any further? But you do want to know how to do it and how not to do it. Therefore, I suggest to the continuing officers, whoever they may be, that they appoint some committees where you have a section to report upon the methods of doing things; how to do and how not to do, as well, perhaps, as what to do and what not to do, and therefore that when you come together next year you not only have somewhat more open and more general programs, but that somewhere in your scheme of organization, somewhere in your plans for the meeting, at least you have room for close discussion of technical details, discussion of means and methods, and deliberative discussion—if you please—what Lloyd George would call a considered answer rather than a vague statement as to conditions or as to methods.

□

Social Service—a Profession.—Social service now has a professional organization in the American Association of Social Workers, 130 East 22nd street, New York City. Since the National Conference of Social Work in Milwaukee last spring the members of this Association, formerly the National Social Workers Exchange, have been developing a program similar in purpose to that of the American Medical Association, the American Bar Association and the engineering societies.

Between fifteen and thirty thousand people in the United States are engaged in some kind of professional social service. They represent a wide variety of fields, including public health, child hygiene, public-health nursing, tuberculosis control, social hygiene, mental hygiene, industrial hygiene, and various related fields; for social service in the modern sense has been developing with remarkable rapidity. In a draft of membership requirements recently prepared by the new Association's executive committee, nearly forty are enumerated in which men and women "trained in social science and technique are eligible for admission."

To qualify for senior membership, according to the proposals of the executive committee, one would have to be at least 25 years of age, a college graduate "or have demonstrated by his practical achievements an equivalent educational background" and have had four years' experience in social organizations of recognized standing. If he or she has had one or two years in a training school for social work, that would be equivalent to an equal amount of practical experience. Graduate work in social science is also made equal to one year of practical experience.

Provision is made for two other classes of members where the standards are less strict than for senior members. The junior membership is intended for the young man or woman with a year or more of experience, who is just beginning social work. The associate membership is intended for lay people who desire to coöperate in raising standards in social work.

To become a member according to these recommendations, each social worker would have to fill out an application blank giving his education, special training and professional experience. He would also give references to three members in good standing of the Association. These applications would then be passed on by a membership committee elected by the central council, and perhaps, also, by a local committee where a local council of the Association was organized. If the application was favorably passed, the social worker would become a full fledged member, receive *The Compass* and be entitled to all services.

REPORT OF COMMITTEE ON RETAIL DISTRIBUTION AND MARKETING OF FOODS

Read before the Food and Drugs Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 18, 1921

THE food supply of the nation is so intimately connected with the public welfare as to make its distribution and marketing of vital importance in the curriculum of public-health service. The subject may be considered from three standpoints: the commercial, the economic, and the sanitary.

The commercial phase will be considered only so far as it has significant bearing on the other two. The distribution should not be interrupted nor retail values enhanced through the undue use of money in cornering staple food products, excessive cold storage holding, limiting production and shipments, or in any way preventing a normal flow to the centers of consumption. Where there are interferences due to human agencies our influence should be exerted both with those having power to promulgate and enforce remedial legislation, and against those who consider too largely profit before necessity. The accusation of profiteering is, however, too generally applied to large food processors or distributors whose names appear on the labels, while too often the real culprits are hidden behind the walls of finance.

"The larger the output the lower the cost" applies as much to food production as to other industries. Statistical data recently gathered show that the large producers and processors receive something like 28 per cent less for their products than do the smaller producers who sell direct to consumers or to local markets. Yet it is the majority of such food producers and processors who give most satisfactory distributing service and whose business prospers. We recognize, however, that a small continuous margin of profit upon a large volume of business with a quick turnover may insure net profits which may be justly criticised, nor are such large food distributors immune from questionable combinations or deceptive labeling and packaging. Regarding the latter practices, relief is promised through a federal measure now pending before Congress.

Recent federal legislation providing for loans to farmers, the attitude of banking institutions and individuals of wealth in financing producers' marketing organizations, and the activities of the various units of the American Farm Bureau Federation clearly indicate that we should coöperate discriminately with those forces which are working for an increased and more economical production, and a more even distribution of foodstuffs.

However, in our efforts to find means to reduce the wide margin between what the producer receives and the cost to the consumer for staple food products, we should seriously consider the commercial phase before committing ourselves to any proposition for government control.

From the economical standpoint, data and information gathered lead to the conclusion that the relation between the health of the people and the ultimate cost of food to the consumer is not given the consideration that it warrants. The number of dietitional diseases caused and alleviated through the diet, the large percentage of malnutrition among school children and certain classes of adults, with the known results obtained by municipal organizations, point to the desirability of a more intelligent coördination of all agencies engaged in constructive work along these lines. We commend those municipalities, too few in number, which have proved the value of maintaining food centers in conserving the public health. Statistics show that they have materially lowered mortality rates. We point to the food center maintained by the Health Department of Brookline,

Massachusetts, as an illustration of how such agencies can increase the efficiency of health departments and coöperate with all welfare organizations, both official and nonofficial, in a community.*

In the distribution of food there are many wasteful practices which add to the cost. This follows from badly coördinated methods of transportation and marketing, trade rivalry, and lack of coöperation among commercial organizations and government agencies. Few of the larger municipalities undertake to exert any influence over the distribution of food other than in matters pertaining to sanitation. We have, however, found several municipalities where the granting of market stands and permits for meat and fish markets were based on the service to be rendered and prices to be charged the public. The advantages of such control through the permit system were pointed out in 1911, by Dr. William C. Woodward.†

A great agrarian organization, the American Farm Bureau Federation, which has been solidly organized in all but four states of the Union, with a membership of nearly 2,000,000, bids fair to solve many of the problems and prevent much of the waste so apparent to students of food economics. We see in this movement the hand of the business world backing up the farmers in their efforts to decrease the cost of food production and marketing. This assistance should result in an increased output and improved marketing conditions, thereby providing a more even distribution with lower cost to consumers. These business men are not lending their aid for any financial return they may obtain direct from farmers, but they realize that a sufficient and economical yield of soil products is vitally essential to the commercial and industrial prosperity of the country.

To illustrate the need for organized effort, we find that hundreds of carloads of celery, asparagus, apples, and other vegetables and fruit are shipped into the eastern markets from Florida, California, Oregon, and other states, in the midst of the New England harvest season for such products. Such procedure does not lessen the cost to consumers, as might be expected; on the contrary, it has discouraged the eastern farmer from supplying the local markets which he is in a position to do at a much lower cost. One of our Committee visited several eastern cities in January and found that about all the fruit stands and many of the markets were selling apples from Oregon. Knowing that the eastern states had produced a large crop, comparable in flavor and quality, he continued his investigations and found that local growers of apples were both storing and marketing inefficiently. Native apples had gone into the market as picked and brought small returns, while buyers, with a glutted market, had shipped to European countries. This condition did not result in affording consistently lower prices to the mass of consumers who purchase in small quantities.

The Committee commends the various women's organizations for the good work they are doing in eliminating waste and promoting efficiency and cleanliness in the distribution and marketing of food products. Not only are such organizations effecting corrections at food shops in communities where boards of health are inactive, but they reach the housewives, many of whom are obliged to practice the strictest economy in providing food for their families.

In many of the essential foods we find too great a difference between the cost of production and the cost to consumer. With wheat selling on the exchanges at $1.15 a bushel, there is something wrong with our economic system when flour at retail is kept up to a price level of wheat

*Descriptive pamphlets may be obtained from the Committee chairman.

†"Sanitation in the Manufacture and Sale of Food Products," *American Food Journal,* September, 1911.

at $1.90. We hear much about reaction, but when sharp periodical drops in the price of foodstuffs occur on the exchanges, the full benefit of such reaction very seldom reaches consumers.

The cash and carry stores, which include chain stores, have been one source of economy in the retail distribution of food. Our investigation showed that the retail cost of sixteen staple foods averaged 17⅓ per cent less than the prices charged by the charge and delivery stores, while the saving on specialties processed exclusively by the chain stores was somewhat greater. That great masses of people take advantage of this saving is evidenced by the rapid increase in numbers of both types of cash and carry stores throughout the country. This indicates that the American public is in a receptive mood for any progressive economic measures that may be presented to them. We recognize that the charge and delivery stores render a necessary service and convenience to a large portion of citizens who are not obliged to count the pennies in making up their family budgets.

In the retail distribution of milk there are opportunities for conservation which if brought about should result in lower prices to consumers. In the larger centers of population there are numerous dealers whose vehicles cover large territories in serving their customers, whereas, if delivery routes were confined to one section the cost of distribution would be greatly reduced. The operating cost is further augmented in the collection of the product from dairies. We find large dealers collecting their supplies from widely scattered areas, necessitating the maintenance of a far greater number of processing and receiving stations than would be required if they were systematically located to serve contiguous producing sections. To reconcile such customs of trade in the interest of economy is a possibility requiring consistent effort through governmental agencies.

In the general distribution of our foods the use of labor-saving devices for processing and sterilizing, coöperative processing and distributing stations for small dealers, and coöperative purchasing of operating supplies are other economies which might be effected through an intelligent coördination of existing conditions.

From a sanitary standpoint, notwithstanding excellent federal and state laws supplemented by local regulations, there are certain basic principles connected with the distribution and marketing of foods which are too often overlooked. There is an apparent lack of appreciation of the effect of unclean utensils and other contact equipment upon the keeping qualities and wholesomeness of certain foodstuffs. Our observances clearly indicate that a large percentage of spoilage which takes place in a retail meat shop is due to contact with contaminated equipment. We suggest that health regulations should require the installation and proper use of adequate sterilizing facilities in stores where meats, fish, and other like foods are sold. Great cleanliness is also necessary for the vehicles used in the distribution of such foods.

In some parts of the country we find that the distribution and marketing of foods in the smaller municipalities receive little sanitary supervision. This is due, apparently, to the belief that these municipalities cannot afford to maintain such supervision. When this control is not provided by governmental agencies it is suggested that nonofficial organizations might find in this a fruitful field of endeavor. While the need for such work is great in large cities, is there not much duplication because of the fact that the constructive work of such organizations is concentrated in these centers?

Inadequate protection of products after leaving the cold-storage plants, contamination through personal contact in serving prepared foods, exposure to rats, flies, waterbugs, and other insects are menaces prevalent in many food-shops. These dangers may be minimized by frequent inspection. In so far as these

menaces apply to the home, a more active participation in educational propaganda seems desirable. There seems to be a decided lack of uniformity in methods adopted and procedures followed by inspection officials. One city will adopt standards for food inspections and condemnations which, although commendable, are often inconsistent with those in adjoining municipalities, while individual inspectors, with little training, are too often left to enforce their own ideas of sanitation.

Because of disease and disability caused by unwholesome food, it is obvious that food inspection officials should receive proper training for their work. In this connection we call attention to the progressive activities of the Women's Municipal League of Boston, Massachusetts, which has recently opened a training school for public service that aims to fit women to become competent public servants. This school provides a course of instruction covering problems connected with markets and provision stores, slaughter houses, bakeries, and soda fountains.* The Committee feels that something should be done towards standardization of food inspection methods, and the causes for condemnations should be defined on a basis of uniformity.

There has been great waste and spoilage in the surplus of army foods which are offered throughout the country by the so-called "Army and Navy" stores. Although three years have elapsed since the signing of the armistice, great quantities of canned foods are still being offered the public under so-called government supervision. Instances can be cited where considerable quantities of these foods have been condemned by local officials. It is ridiculous for one branch of the government service to be toiling for the health and betterment of the public, while another branch is striving to distribute for consumption, foods which are being condemned by local inspectors. Such distribution has been going on for some time and it now seems opportune that action should be taken.

Regarding the sanitary distribution of milk, as this product is so generally recognized as vitally essential to the human dietary, it receives rather better protection at the hands of state and municipal authorities than do other foods. However, much of the supply for the larger cities comes through interstate shipments over which local officials have no control. It is here that the greatest spoilage and deterioration occur. From a recent investigation made, conditions as regards train schedules, placement of cars, and additional trainmen, are somewhat improved, but the results of inadequate supervision and lack of any definite regulations as to icing in summer and heating in winter are still extremely apparent. The care of the milk in transit and of the return empty containers is left to the discretion of carmen, many of whom are irresponsible and ignorant of the principles of sanitation. The responsibility for such conditions rests with the Interstate Commerce Commission, which has, since our report of last year, taken some steps towards ameliorating them, but such action has apparently been without intelligent investigation and is entirely inadequate. No constructive plan has yet been promulgated to eliminate the sanitary deficiencies or insure permanency in such reformations as have been started.

Needed reforms in the distribution and marketing of food must come through a demand from, rather than a command to, the people. There are no other agencies through which such a demand could be more effectively created than those represented by the American Public Health Association.

WILLARD E. WARD, *Chairman,*
LUCIUS M. TOLMAN,
WALTER W. BURDETTE,
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J. LAWRENCE MCCORMICK.

*Descriptive pamphlets may be obtained from the Committee chairman.

FOOD AND HEALTH

HENRY C. SHERMAN, Ph. D.
Professor of Food Chemistry, Columbia University

Abstract of paper read at the Third General Session of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 17, 1921

WHILE the science of sanitation and many years of food inspection have, generally speaking, rendered the food supply safe, the science of nutrition has made it more than doubtful whether a freely chosen food supply is always as adequate as we have been accustomed to assume in the past.

The work of the past ten years has shown that a dietary made up, as so many American dietaries are, too largely of breadstuffs, meats, sweets and many fats, may be satisfying to the palate and to the traditional demand for variety, may furnish ample quotas of protein and calories with fats and carbohydrates in any desired proportions, and yet may be inadequate because of faults in its mineral and vitamine content. Fruits, vegetables, eggs, and, most of all, milk, serve to make good these deficiencies of breadstuffs, meats, sweets and fats.

Brilliant as have been the investigations through which the newer knowledge of nutrition and the newer and broader conception of food values have been built up, they must not be allowed to blind us to the importance of those nutritive requirements which were previously known.

Ample calories, enough protein of suitable sorts, adequate amounts and proper proportions of each of several mineral elements, and enough of each of at least three kinds of vitamines—all these must be furnished by any food supply which is to be permanently adequate. But we need not stop with mere adequacy. There has been too general a tendency to make adequacy of nutrition the goal of investigations of the nutritional values of foods, and in studying food combinations by means of feeding experiments to stop with the finding of an adequate diet as if there were nothing more to learn.

Feeding experiments with laboratory animals are showing that a dietary adequate according to all current standards may yet be capable of considerable improvement. In a series of experiments still in progress, two groups of families from the same stock have been kept on two dietaries, one containing a sufficient amount of milk to make the food supply adequate, the second differing only in that it contains a higher proportion of milk. This increase in the proportion of milk in a diet already adequate results in more rapid and efficient growth, a slightly larger adult size and distinctly greater vigor as indicated by earlier maturity and more successful reproduction, with a lower infant mortality, and also a lower death-rate among those surviving infancy, notwithstanding the fact that they have borne and suckled more young. There is no reason to doubt that in human nutrition, also, a higher degree of health and vigor will follow an improvement in the dietary, such as an increase in the proportion of milk, even where the original dietary is already adequate according to current standards.



AVOID THE RUSH!

The 1922 Membership Campaign is getting under way. The A. P. H. A. expects every member to get a member. Get yours early!

THE HEALTHFUL HOME

Ira S. Wile, M.D.
Associate Editor, American Medicine, New York City

Read before the Third General Session of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 17, 1921

When the colonists of three hundred years ago settled on the Massachusetts coast they built habitations of logs, filled the crevices with straw and mud, and thatched the roofs with reeds. Oiled paper sufficed for glass. The characteristic stone chimney led up from the broad fireplace in which pine knots crackled and blazed. Within the twenty foot enclosure human beings ate, slept, and worked, while endeavoring to resist the ravages of disease and the attack of the Indians. This was the healthful home of the Pilgrims and Puritans.

Times have changed, and the log cabin is a relic of a courageous past. Whether homes of to-day are more healthful is a matter that merits consideration. It is as impossible to compare the apartment house dwelling to the private house with any great assurance or dogmatism as it is to contrast the abodes of the cliff dwellers with the chateaux of France. The processes of change, growth, and decay are as apparent in the consideration of the homes of each generation as they are in considering the anatomy and physiology of human beings from infancy to old age. The needs and requirements of each age and generation help to determine the general character of their habitations. Their ideas, education, and ideals are closely related to their expression in manner and methods of living. Indeed, the healthfulness of homes must be regarded in the light of the existent knowledge concerning the laws of hygiene and right living.

The healthfulness of homes during the Middle Ages in the days of open sewers and barred streets, when cattle and human beings dwelt together, reflects different standards from those which it is fair to expect to-day in the light of our knowledge concerning the importance of sanitation, ventilation, lighting, heating, water supplies, garbage disposal, and the relation of insect life to family welfare. It is patent that the healthful home for the rural dweller is not identical with that requisite for the promotion of safety and comfort for the urban citizen.

A home is the fixed abode of a person and his family; a congenial abiding place in which should be found affection, peace, and rest. Bearing this concept in mind, one recognizes at once the variations in home organization. As humanity is ordinarily placed in social and economic strata, it is natural to find a differentiation in the homes, from the degraded and degrading levels deemed satisfactory for the poorest to those considered ultra-comfortable for the millionaires. It need not be assumed that the alleged superior dwellings of the rich are, therefore, infinitely more healthful than those available for the poor. The health needs of the artisan, the artist, the laborer and the banker do not vary greatly in so far as physiologic and hygienic standards are concerned. The relative degree to which the ideals are approached varies greatly, but the differences may depend more upon the size of the family or the number of persons per room, than upon the essential defects in the structure.

A reasonably healthful house for a man and his wife may be converted into an unhealthful home when five children are living in surroundings whose air, light and bathing facilities are only adequate for two. A well-ventilated, modern apartment may be converted into an unhealthful abiding place for children by reason of the presence of an ignorant, slovenly mother, or the coarse and disgusting habits of mental dements, or diseased beings who do not know how, or

are unwilling, to take proper care of their secretions and excretions. The segregation of the sick may alter conditions so as to transform an unhygienic home to one that is more healthful.

Standards of healthful living do not depend essentially upon the gratification of esthetic desires. Beauty may influence emotional states and add to the joyfulness of homes, thus reacting upon the general well-being. The architecture in itself, and the use of rare woods, mantels, mirrors and ornate fixtures do not constitute in themselves healthful appliances.

On the other hand, the furnishing of homes with the modern methods of lighting, heating and ventilation contributes greatly to their comfort, safety, and healthfulness. The use of coal stoves instead of gas heaters, the employment of electricity instead of gas, oil, or candles, high ceilings as opposed to low, marble floors as opposed to planks, indicate modifications which do influence the healthfulness of the surroundings.

It is obvious that in discussing healthful homes, it is difficult to generalize concerning homes and families which are of various genera and species. There are essential variations due to differences in economic status, in racial traditions, and climatic conditions. The same type of home that is fitted for the one who lives in the tropics is ill-fitted for one in the polar regions. The heating requirements of those who are well-fed and well-clad are not the same as for those who are half-starved and poorly clothed. From the standpoint of economic maladjustment, the lower the wage scale of the family the greater the attention that should be bestowed upon adequate housing conditions. In the light of our partial failure to recognize communal responsibility for healthful habitations, much of present day discussion is academic. It is true that the high rental problem has more or less overshadowed all other phases of home making. The interrelation of wages and rent at the present time possesses little proportion and eliminates many questions of hygiene and safety which are subordinated to the supreme necessity of securing a place of shelter within the financial possibilities of individual families. The burden of high rentals in the face of falling wages tends to reduce home standards through the limitation of money available for food, clothing, recreation, medical and dental attention. These unfavorable influences unfortunately eliminate numerous fundamental elements conducive to healthful living. It must not be forgotten that morbidity and mortality generally are in inverse proportion to family incomes. To this extent, rental in the low income groups is an exceedingly important factor as a determinant of the general hygienic standards of the home.

In this age there is a constant clash between philosophic ideals and their practical realization. It may be fairly stated that the index of civilization at any period is determined by the ratio of attainment to ideals. In the contemplation of the present situation regarding homes, there are relative peaks of achievement, but these specific performances are of no greater communal significance than incidental accomplishments in painting, architecture, literature, or welfare. The average standards of homes must determine the general character of a home making environment. In an age of electricity it is impossible to regard the standards of the high class home as the norm, as there still remain the majority of homes in which these benefits and advantages do not exist. It is difficult, too, to contrast the hygienic elements in homes adequately provided with natural foods and fresh produce, with those in which dependence is placed upon canned goods, restaurant meals, or recourse to delicatessen shops.

Healthful homes depend upon the interaction of at least five basic factors. These are: biologic, economic, social, educational and political.

The biologic elements are involved in

the home makers. It is patent that the personal element is of fundamental importance in the establishment of healthful homes. This involves the physical and mental well-being of the parents and offspring. The existence of physical handicaps or of communicable diseases are evident influences which lessen the normality of home life, and physical incapacity may serve to deflect the emphasis from the hygienic characters inherent in the habitation to the necessity of stressing personal hygiene and the correction of handicapping personal deficiencies. A paralyzed wage-earner may become partially parasitic and undermine the general health of a family, and lead to a breaking down of the hygienic régime requisite for normal living. Mental deficiencies of parents or children involve numerous difficulties which work against the health, efficiency, and happiness that are necessary for the highest forms of home making. These human elements constitute a most vital part of living, and merit as great consideration as the question of house structure.

Economic factors are of considerable importance. The fundamental necessity of a living wage as a factor in hygiene is not fully appreciated. There may be some relation between income and mental capacity, but, regardless of this, it is undeniable that the amount of money available for the necessities of living is of the utmost significance in determining the realization of the ideals of a home and in securing surroundings which are conducive to health. The relation between a living wage and adequate light, sunshine, food, warmth, clothing, and the gratification of self interests indicates its immeasurable influence upon the health of the home. The economic factor has been revealed in every study of tuberculosis, infant mortality, and contagious diseases thus far made.

Closely related to the economic factor is that of social influence which carries with it social standards. The problems of room congestion, food habits, racial superstitions, boarders, personal cleanliness, and recreational efforts are to no slight degree dependent upon social attitudes and outlook as opposed to the mere difficulties of economic adjustment, which, however, must not be disregarded. The desire for a healthful environment, the wish for social esteem, and the ambition to exhibit the elements of social refinement are not purely cultural in character, but they have an innate influence upon all standards of the home.

Of far greater importance are the educational aspects. The degree of education and training with their correlated effects is of vitally determining import. A knowledge of hygiene is imperative for family health regardless of the physical perfections of the home. A knowledge of foods and cookery, of clothing, of the needs of ventilation and fresh air and sunshine, a realization of the advantage of isolation and quarantine during contagious diseases, a reasonable degree of information concerning the preservation of health and the prevention of disease are necessary to create a healthful home. Natural instincts for self preservation are inadequate in the face of modern conditions of living. Physical and mental hygiene are indispensable and the spread of knowledge concerning them is of the utmost concern to public-health administrators. It is evident that there are definite interrelations between the educational advantages of a home and the biologic and economic characteristics of the home makers.

Leaving the personal elements of the home, one may recognize the political phases that affect the home. The individual is far from completely responsible for the health status of the home. The communal consciousness of the necessity of hygienic living is of transcendent prominence. The civic attitude towards housing merits consideration. Certainly the large functions of water supply, sewage disposal, removal of garbage and rubbish, are recognized as elements in protecting the health of the homes as

part of the protection of the health of the community. Laws and ordinances designed to determine lighting, heating, and the cubic capacity of rooms, and the installation of fire escapes represent the expression of a civic desire to safeguard the welfare of home makers. There is a large number of laws and ordinances written yearly which crystallize current information and evidence the trend of ideals in communities. The degree to which these laws are enforced and the effect thus secured demonstrates the distinction between civic ideals and their practical realization. The existence of neighborhoods whose housing and homes are far below the acknowledged standards of the age is a reflection upon our civic attitude. The breaking down of laws and regulations that aim to destroy dark inside rooms, that promote the bestial herding together of persons in filthy, broken-down tenements is indicative of an impaired civic conscience. The strong, the rich and the educated are able to establish reasonable hygienic conditions in their homes, but the great mass of people are dependent upon the protection that comes from the combined activity on the part of organized society, functioning through intelligent, constructive, social-minded legislation.

To many the subject of healthful homes appears to be a personal matter—one dependent upon individual desire and effort. In the last analysis, however, healthful homes are dependent upon the interaction of biologic, economic, social, educational and political forces, many of which are beyond the control of individuals. In a broad consideration of the problem, therefore, more attention must be given in the future to numerous phases of heredity and eugenics, industrial organization and economic returns, sociological elements, educational opportunities, public-health education, and political ideas as transmuted into legislative enactment and civic interest. It is insufficient to point out the existence of poor plumbing, leaking roofs, and unlighted rooms, the inroads of insects, the existence of alcoholism or drug addiction, the ignorance of individuals and their poverty, and the presence of the diseased and the defectives.

Vision must be directed to the deeper-lying causes responsible for these shortcomings. Much of the responsibility for low standards of homes must be transferred from the individual to the community which countenances, tolerates or condones them. The interdependence of human life and welfare demands the protection of the weak in the interest of the strong. The poetry of home making must not exclude its prosaic nature. The healthful home may be an expression of personality and individual resourcefulness, but its nature and limitations, its advantages and disadvantages, its harmony or maladjustment, its unhealthfulness or its healthfulness are indices of the public interest in the welfare of all manner of citizens, regardless of race, color, social or economic status.

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Health in an Ideal State.—Years ago, Samuel Butler wrote in Erewhon, "In that country, if a man falls into ill health, or catches any disorder, or fails bodily in any way before he is seventy years old, he is tried before a jury of his countrymen, and if convicted is held up to public scorn and sentenced more or less severely, as the case may be. There are subdivisions of illnesses into crimes and misdemeanors as with offenses amongst ourselves—a man being punished very heavily for serious illness, while failure of eyes or hearing in one over sixty-five, who has had good health hitherto, is dealt with by fine only, or imprisonment in default of payment."

May we some day adopt laws similar to that recommended by Butler for erring, stupid or negligent parents.

—*Rochester Health Bulletin*, December, 1921. (*J. A. T.*)

CHEMICAL AND BIOLOGICAL REACTIONS IN THE DORR-PECK TANK

A. M. Buswell, A. A. Brensky and S. L. Neave

State Water Survey, Urbana, Illinois

Read before the Sanitary Engineering Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 17, 1921

THERE are several methods which have been employed with greater or less success for the introduction of air into sewage, otherwise than by blowing through porous plates. Some of these have features similar to those of the Dorr-Peck tank. Coulter[1] describes experiments in which he forced water under considerable pressure through a nozzle, allowing it to strike upon the surface of the liquid in the tank. The force of the stream carried a considerable amount of air down into the liquid. In fact, by using a large diameter pipe directly beneath the point where the stream struck the liquid in the tank, thereby producing a sort of suction pump, it was found possible to carry air bubbles several feet beneath the surface of the liquid.

This method has not to our knowledge been employed on a large scale in purifying sewage.

A second method which was employed by Brosius[2] and Trent[3] independently, produces a mixture of air and liquid by drawing or forcing the liquid rapidly down a vertical pipe at such a rate that air is mechanically carried down with the water. In the Trent apparatus a series of small pipes inside the large vertical downtake pipe facilitated the introduction of air. In neither of these machines were the conditions produced satisfactory for the maintenance of activated sludge.

A third method for introducing air, and one which has been frequently attempted, is that of surface aëration. Haworth[4] appears to have successfully operated an activated sludge plant by surface aëration at Sheffield, England. He causes the sewage and activated sludge to circulate through long channels. These channels are approximately four feet wide and four feet deep. The rate of flow is just sufficient to maintain the sludge in suspension and amounts to one and a half feet per second. Housings cover paddle wheels which force the liquid along the channels. This plant has a capacity of 500,000 gallons of sewage per day and has been in successful operation for over a year. The capacity is equivalent to 1.3 million gallons per acre per day and the power equals 50 h. p. per million gallons.

One point which should be mentioned in connection with the success of this particular experiment is that there is a considerable amount of iron or pickle liquor waste in the raw sewage. It will be remembered that Mumford in describing his M7 called attention to the importance of iron. Of the various methods of economizing on air we should like to call attention to the intermittent aëration proposed by G. A. H. Burn.[5] This author suggests cutting off the air during the peak of the power load. If the peak does not last more than 3 or 4 hours, satisfactory results might be obtained.

The second feature of the Dorr-Peck tank is the automatic return of sludge. Among the previous investigators who have designed apparatus so as to return the sludge without pumping might be mentioned the following:

Frank[6] describes a tank with a central aërating chamber, and two elevated side chambers with a V cross-section, the aëration taking place in the central chamber from which the aërated sewage overflows into the side chambers where sedimentation takes place. The bottoms of these chambers are open so that the settled sludge drops back into the aërating chamber.

Martin[7] describes a cylindrical tank divided into segments. A radial trough is provided for sedimentation, from the bottom of which the settled sludge may be returned to the aërating segment.

G. T. Hammond's[8] tank had an upper and lower chamber, the lower chamber being used for aëration and the upper chamber for sedimentation. The settled sludge could be returned by gravity.

George Moore[9] describes a two-chamber tank with means for discharging the thickened sludge from the lower portion of the second tank directly back to the first.

S. H. Adam's[10] sedimentation tank had an apron roof in which sedimentation took place in the upper portion of the tank on the apron, the settled sludge slipping through a slot into the lower portion of the chamber.

Other means for accomplishing these results have no doubt been employed. The above are mentioned simply as examples of progress in this direction.

DESCRIPTION OF TESTING STATION

The plant* at which the experiments described in this paper were carried out is shown in the accompanying figure (Fig. 1). At the left in the foreground is a steam boiler; further back and a little to the right, is a Bayley drier, while at the extreme right of the picture are seen the two Dorr-Peck tanks which were operated in series. The small tank was used for drawing and concentrating sludge. In the background is seen the housing over the old Talbot septic tank of historic interest. This tank is also known as the original Champaign septic tank. At the left of and a little behind the drier can be seen the Patterson filter press. Figure 2 shows a closer view of the Dorr-Peck tanks. The pipe in the foreground to the right carries the entire effluent of the plant as discharged from a weir box. One of the workmen can be seen taking a reading of the height of the water over the weir. A Foxboro gauge makes a continuous permanent record of the amount of the effluent. At the left may be seen a portion of the

*Previously mentioned by Edward Bartow in *Proc. Amer. Soc. for Mun. Improvement*, 1920, p. 280; *J. Ind. and Eng. Chem.*, Oct. 1921, p. 945.

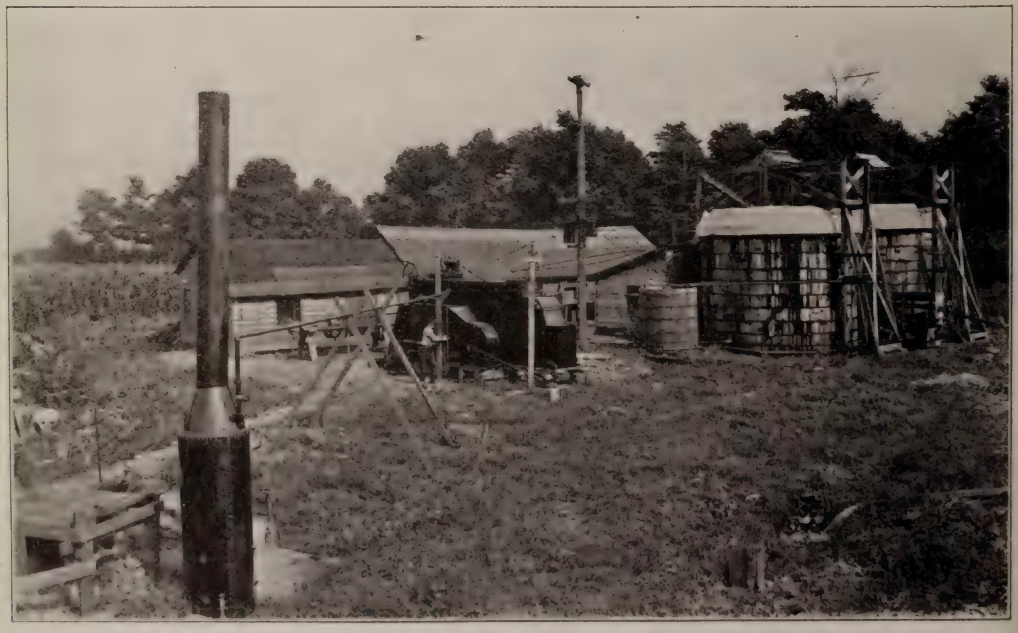


Fig. 1. A view of the plant showing the Dorr-Peck tanks



Fig. 2. A closer view of the Dorr-Peck tanks

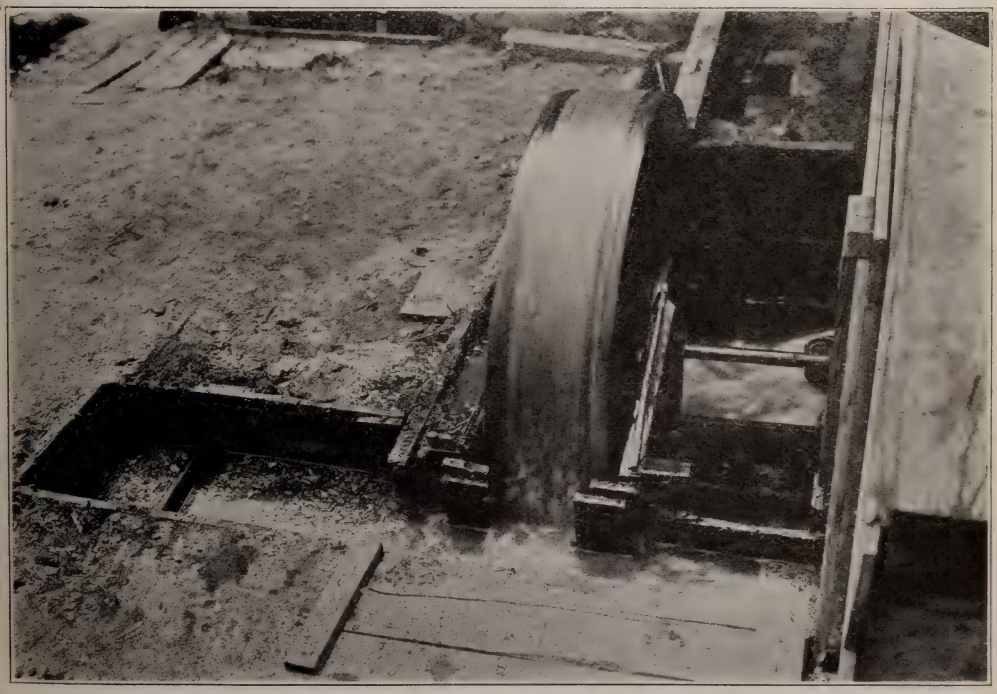


Fig. 3. A small Dorrco screen receives a portion of the sewage

housing covering the motors, pumps and blower. The white collars about the upper portions of the tank are canvas wind breaks provided to prevent disturbance of the sedimentation chamber.

The outfall sewer carrying the entire sewage of the city of Champaign runs along between the Dorr-Peck tanks and Champaign septic tank. A portion of this sewage is taken off through a small grit chamber and passed through grate bars with 1⅜ inch spacing and delivered to a small Dorrco screen shown in Figure 3. This screen consists of a revolving drum, the periphery covered with a screen having slots 1/16 in. x ½ in. parallel to the axis of rotation. The data on the operation of this screen will be given elsewhere.

Figure 4 shows a diagrammatic cross section of the Dorr-Peck tank. As has been noted these tanks were used in series. The dimensions of the tanks with capacities of the various chambers and the detention periods in each, based upon a 100,000 gallon per day flow, are as follows:

Both tanks are 17 feet in diameter and 13 feet high, with a capacity of 2,930 cubic feet or 22,000 gallons each. The lower is the aëration chamber, the capacity of which is 1920 cubic feet or 14,400 gallons in the first tank, and 1,700 cubic feet or 12,700 gallons in the second tank. The upper chambers are settling chambers and have capacities of 7,600 gallons in the first tank and 9,300 gallons in the second tank. The detention periods based on a flow of 100,000 gallons per day are as follows:

Total time of treatment, both tanks, 10.5 hours. Aëration period, first tank, 3.5 hours, second tank, 2.95 hours. Sedimentation period, first tank, 1.8 hours, second tank, 2.2 hours.

The settling chamber communicates with the lower chamber by means of four peripheral downcast wells, two of which are shown in section in the figure. These downcast wells are baffled as shown to prevent air bubbles from rising through the sedimentation chamber. Sewage passes from the aëration chamber to the sedimentation chamber through the cen-

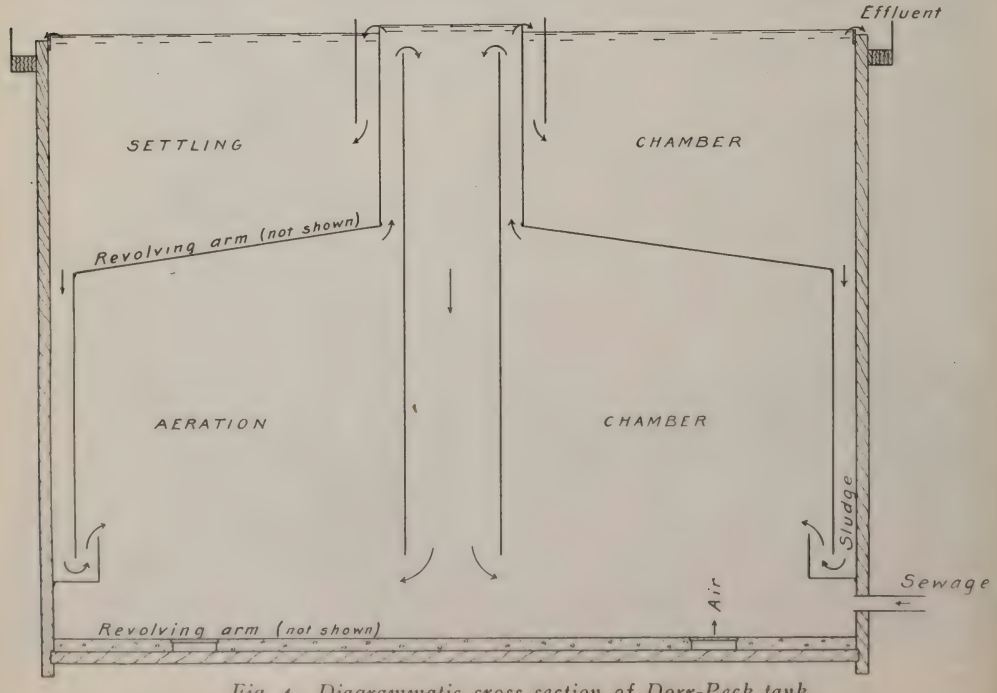


Fig. 4. Diagrammatic cross section of Dorr-Peck tank.

tral upcast well, as indicated by the arrows.

The two long vertical lines in the center enclosing the arrow pointing downward show the position of the circular downcast well, whose function will be described later. The two short vertical lines at either side of the upcast well represent a circular baffle which prevents undue agitation of the sedimentation chamber. An annular trough collects the overflow from the settling chamber. A plan of this tank would be represented simply by five concentric circles which, if numbered from outward toward the center, would represent: No. 1, outer wall of the effluent channel; No. 2, the wall of the tank; No. 3, the baffle; No. 4, the upcast well; No. 5, the central downcast well.

Filtros plates are set in an inscribed square in the bottom of the tank, the area of the plates being about one-sixth the area of the tank. Both chambers are provided with Dorr thickeners not shown in the figure. These thickeners are operated by means of a central shaft upon which the central downcast well is hung. The settling chamber baffle serves as a brace for the revolving arms of the thickener in the sedimentation chamber, hence the baffle and the circular downcast well revolve with the mechanism. This mechanism has a velocity of one revolution in seven minutes. The function of the thickener rakes in the lower or aëration chamber is to prevent the collection of sludge upon the floor of this chamber. In the sedimentation chamber the thickeners plow the sludge toward the periphery, keeping the sludge in motion and preventing it from becoming septic.

Sewage enters the first tank, as indicated by the arrow in the lower right. It is mixed with sludge returning through the peripheral downcast wells, and aërated. The air bubbles, acting as an air lift, cause the sewage to rise to the level of the top of the upcast well and overflow. A portion of the aërated sewage then slops over the collar of the upcast well and passes through the sedimentation chamber, while another portion returns, together with considerable amounts of air, through the central downcast well. This central downcast well has an effect somewhat similar to the down suction wells of the Brosius and Trent machines, with the result that air is drawn down with the returning sewage. The effluent from the first tank passes by gravity to the bottom of the second tank, which is set a little lower to provide the necessary head. The amount of liquid slopping over the collar of the upcast well must be greater than the total flow of sewage, otherwise sewage would pass up the peripheral downcast wells, a condition which must be absolutely prevented. The amount of the slopover has been measured by means of a weir designed by Mr. A. A. Brensky, the engineer in charge of the operation of the plant. This weir is shown in Figure 5.

The outer circle shows a metal outer wall band with weirs, which is clamped

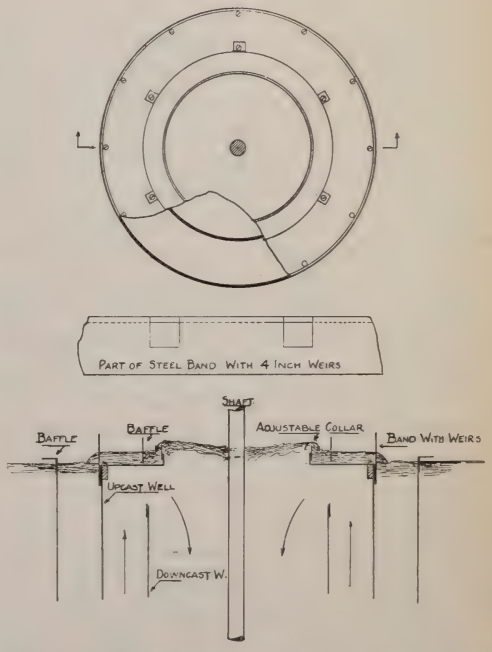


Fig. 5. Plan and section of device on upcast wells of the Dorr-Peck tanks

around the upcast well. The second circle shows a stilling baffle, while a third circle, not seen in this view, represents the collar of the upcast well. The cross-section shows the flow through the weir. Figure 6 is made from a photograph of the weir in operation.

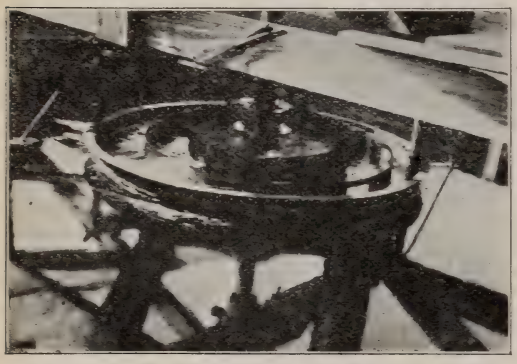


Fig. 6. Weir in operation

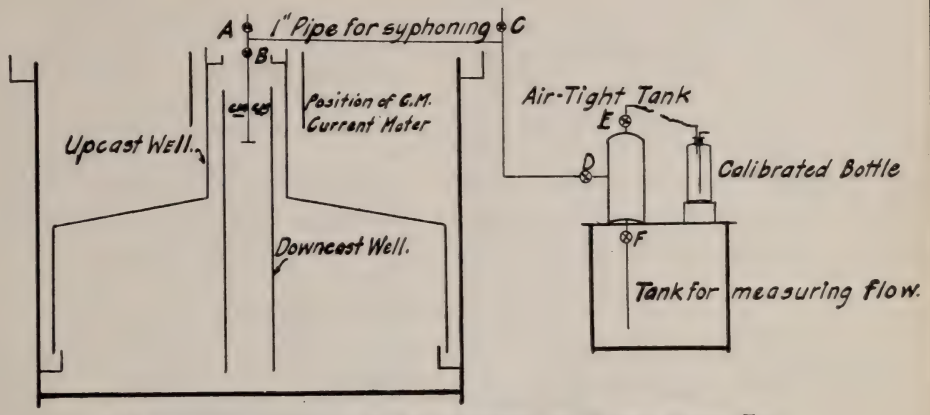
The sewage which is raised by the air-lift slops over into this annular weir instead of directly into the sedimentation chamber. By means of this device we are able to measure the rate of flow in the sedimentation chamber. The weir is provided with an inner movable collar, the adjustment of which determines the amount of the slopover. The effect of this adjustment may perhaps be illustrated by mentioning one or two critical points. If, with a constant flow of sewage and air, the collar is adjusted so that the flow through the weir is just equal to the total flow of sewage, we have the highest operating position of the collar, and at the same time a minimum velocity in the sedimentation chamber and a zero velocity down the peripheral downcast wells. When from this position the collar is lowered the flow is increased through the weir, thereby increasing the velocity in the sedimentation chamber and producing an appreciable velocity down the peripheral downcast wells. Incidentally, it might be noted at this point that the velocity in the sedimentation chamber and the amount of return of sludge through the peripheral downcast wells are dependent upon the same adjustment, namely, the height of the collar on the upcast well weir. This same effect can be obtained by lowering or raising the downcast well.

If, again starting from the position at which the flow through the weir is exactly equal to the pumpage, we should raise the collar of the upcast well weir, we would cause a reversal of the flow through the peripheral downcast wells, thereby disturbing sedimentation and preventing the return of sludge to the aërating chamber. An additional adjustment was provided by placing a movable collar around the upper end of the central downcast well, with the idea that raising this collar would decrease the amount of return through this well, and lowering, of course, would have the opposite effect. The adjustment of this apparatus was sufficiently complicated without the use of this collar, so that we have made practically no use of it.

It will be seen, then, that there are four factors effecting the rate of flow through the sedimentation chamber: First, the amount of sewage pumped; second, the amount of air used; third, the height of the collar on the upcast well or weir; and fourth, the height of the collar on the downcast well. To maintain the sedimentation chamber velocity constant, it is necessary, therefore, to adjust the collar for each change in amount of sewage treated or amount of air used.

The air economy accomplished by this apparatus is presumably due, in a large measure at least, to the return of air and sewage through the central downcast well.

Figure 7 shows the arrangement of apparatus used for finding the ratio of returning air to liquid and the velocity and quantity of flow in the central downcast well. The manner of procedure is given in the figure. With this apparatus two series of tests have been run. In the first the velocity down the central downcast well was found by current meter readings to be .70 to .75 feet per second and the



A DIAGRAMATIC SKETCH OF ARRANGEMENT OF SET-UP USED FOR MEASURING RETURNING AIR & SLUDGE IN CENTRAL DOWNCAST WELL.

1. With valve F closed, the pipe line & tank are completely filled with liquor until it is discharged at E. Close E and reprime at A, displacing all of the air in the system.
2. Open Valve F; A portion of the mixture in D.C. well flows into Air tight tank when air is trapped while liquor flows into measuring tank below. Allow to run for a period of time.
3. Close Valves F, then D; Open C, to break siphon, then D. Attach tube at E to bottle. By opening E, and pouring water into pipe at C, air in the tank displaces equal volume of water.

Fig. 7

"returned air" amounted to 5.1 per cent of the amount introduced through the filtros plates. In the second series the velocity down the central downcast well was .65 to .70 feet per second and the "returned air" 6.3 per cent of that blown. The central downcast well velocity might be expressed by saying that the average particle circulates down this well twenty times.

EXPERIMENTAL RESULTS

Nitrogen Balance: Previous experiments carried on by the Dorr Company with the coöperation of Professor D. D. Jackson of Columbia University had indicated that the activated sludge process as carried out in this apparatus did not result in the loss of nitrogen. Accordingly, one of our first experiments was to determine whether or not nitrogen was lost in this process.

For this purpose, hourly samples of the effluent and influent were taken and composited for analysis. The sludge drawn from the apparatus was carefully measured and samples taken for analysis. The analyses included determinations of free and albuminoid ammonia, nitrates, nitrites, and total organic nitrogen by the Kjeldahl method. The ammonia, nitrate and nitrite, and organic nitrogen, all expressed as nitrogen, were added together, converted into pounds per 1,000 gallons and multiplied by the flow for each day. These sums were tabulated for the entire period from December 14, 1920 to February 18, 1921, and are presented in Table I.

TABLE I

NITROGEN BALANCE DEC. 14, 1920—FEB. 18, 1921	
Total gallon influent	5,556,310.00
Total gallon effluent	5,468,810.00
Total gallon sludge	87,500.00
Total nitrogen influent, lbs.	1,423.83
Total nitrogen effluent, lbs.	1,332.15
Total nitrogen sludge, lbs.	85.66
Net loss nitrogen, lbs.	6.02
Net loss	.43%

From this table it will be observed that during a run extending over 63 days there was a net loss of .43 per cent of nitrogen. Since this amount is within the limits of experimental error, we would conclude that our methods of sampling and analyzing have been sufficiently accurate to keep track of all of the nitrogen, and that in this process there is no volatilization of free ammonia and no reaction taking place between primary amines and nitrites whereby gaseous nitrogen is formed.

Table II shows a nitrogen balance run from May 3 to September 1. The data is presented in this form in order to point out the danger of drawing conclusions from short periods of operation. For instance, it appears that from May 14 to May 21, approximately 11 per cent of the entering nitrogen was lost, while from June 2 to June 15, there was an apparent gain of 25.7 per cent.

TABLE II. NITROGEN BALANCE

Duration of Run		Influent		Effluent		Sludge		Loss or Gain
Date	Days	Average Gals. in 24 hrs.	Total lbs. N_2 Added as Scr. Sewage	Average Gals. in 24 hrs.	Total lbs. N_2 in Effluent	Total Gals. Drawn During Run	Total lbs. N_2 in Sludge	In Nitrogen (Per Cent)
May 3-13.....	11	88,200	200.2	84,100	184.2	.....	.....	— 7.9%
May 14-21....	8	86,700	163.9	85,600	122.2	9,050	23.68	—10.9
May 22-1.....	11	88,500	152.0	86,600	118.7	17,100	43.07	+ 6.4
June 2-15	14	91,430	273.0	85,200	176.1	87,150	166.85	+25.7
June 16-30....	15	87,700	338.9	85,840	277.3	26,840	25.04	—10.8
July 1-10.....	10	84,800	216.1	81,100	210.2	3,700	3.08	— 1.3
July 15-31....	17	78,600	343.9	73,500	268.4	88,100	100.40	+ 7.2
August 1-15...	15	70,500	293.2	62,800	187.4	92,450	104.50	— 0.1
August 16-21..	6	62,000	132.6	57,000	65.9	30,100	83.60	+12.7
August 22-1...	11	64,600	207.6	62,800	143.3	19,630	51.40	— 6.2
Total.....	118	.....	2,321.5	.....	1,753.8	374,120	601.62	Ave.+1.5

Such a result as this would lead one to infer that there must be considerable fixation of atmospheric nitrogen, while, as a matter of fact, there was undoubtedly an accumulation of sludge from the preceding period which was drawn during the first two weeks of June. Averaging the results for the entire period, we note the apparent gain of 1.5 per cent of nitrogen. When the difficulties involved in obtaining an average sample are considered, as well as the limits of accuracy of the analytical procedure, we regard this value of 1.5 per cent as being within the limits of experimental error, and checking reasonably well with our loss of .4 per cent, which shows the result of the previous run.

These results are interesting when compared with results of nitrogen recovery experiments on activated sludge made by other workers with different types of activated sludge tanks, and using much larger quantities of air. For instance, Pearse and Mohlman[11] state that in the summer there is a 41 per cent loss of nitrogen and in the winter a 23 per cent loss of nitrogen. In the Packingtown experiments it might be noted that 3½ to 4 cu. feet per gallon of air was used.

There is, of course, danger of being misled when comparing results obtained on different sewage.

Wet Burning of Solids: At the suggestion of Mr. G. W. Fuller, who visited our plant some time ago, we made a calculation from our data to determine the amount of solids "wet burned." From Table III it is seen that the total amount of solids in the influent from May 3 to September 3 was 78,300 pounds, while the effluent contained 65,400 pounds and the sludge 8,070 pounds of solids. Adding the sludge solids to those of the effluent and subtracting from the total solids in the influent, we see that there is a loss of approximately 5,000 pounds of solids. In other words, approximately only two-thirds of the solids removed are obtained as sludge. This table also shows that the sludge amounts to a little less than ½ ton per 1,000,000 gallons. From the analyses of the sludge given in Table IV, its extremely light character can be observed. The average analysis of 64 samples of sludge shows (Table IV) 99.74 per cent moisture. The nitrogen in the dry sludge calculated from analyses of wet samples amounted to 5.63 per cent. This, it will be noted, is calculated as nitrogen and not as ammonia.

TABLE III

REMOVAL OF SOLIDS, MAY 3, 1921—SEPT. 3, 1921

Gallons influent	9,466,000
Pounds influent	78,600,000
Pounds solids influent	78,300
Gallons effluent	9,091,880
Pounds effluent	75,700,000
Pounds solids effluent	65,400
Gallons sludge	374,120
Pounds sludge	3,104,200
Pounds dry solids sludge	8,070
Influent solids minus effluent plus sludge solids pounds	4,830

TABLE IV

SLUDGE ANALYSES

(Average of 64 samples)

Moisture	99.74%
Total solids	2622 ppm.
Total nitrogen	211.8 ppm.
Nitrogen in dry sludge	5.63%

Reduction of Nitrates: In the earlier experiments of the activated sludge process considerable attention was paid to the amount of nitrification, that is, of oxidation of organic nitrogen and ammonia to nitrates. Metcalf and Eddy,[12] quoting Hatton[13] and Copeland's work, report that in experiments at Milwaukee using as little as .67 cu. ft. of air per gallon, clarification was obtained but no marked stabilization of the sewage. Reference to the table of data in the article cited above shows that using that amount of air, there was a complete reduction of nitrites and a 50 per cent reduction of nitrates. By using enough air so that decided nitrate formation was produced, these workers obtained a clear and stable effluent.

In Figure 8 we have plotted the amount of air used, the amounts of free and albuminoid ammonia in the effluent and influent, and the amounts of nitrates plus the nitrites in the effluent over the period from May 13 to September 28.

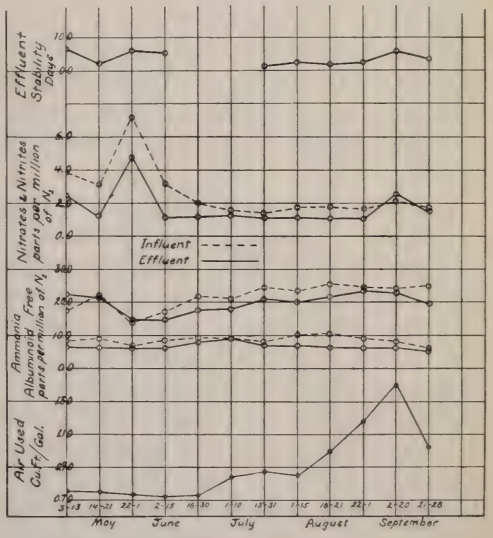


Fig. 8

From this diagram it is seen that there is an appreciable decrease in both free and albuminoid ammonia as well as in the nitrates in the effluent. It is interesting to note, however, that when the air amounts to 1½ cu. ft. per gallon, the effluent and influent curves for nitrates cross. In other words, at this point

nitrification takes place. Again, on reducing the air to one cubic foot per gallon there is a reduction of nitrates. This data leads to the conclusion that in the experiments reported in this paper, the nitrification phase of the activated sludge process is entirely absent, and that nitrification is not essential to the success of the process. It is apparently possible under some conditions to produce a clarification and reasonable stabilization of sewage operating with so little air that nitrate oxygen in the raw sewage is actually consumed by the microörganisms of the sludge. Attention should, however, be called to the fact that one maximum in the stability curve occurs simultaneously with the maximum influent nitrate and the other with the maximum air. If it is assumed that the free ammonia and nitrates and nitrites are essential as food for the microörganisms composing the sludge, this may explain why there is no very apparent loss of nitrogen; for it is possible that the nitrites do not reach sufficient concentration to cause them to react with the primary amines resulting in the liberation of nitrogen gas.

Relation Between Volume and Weight of Sludge: It has generally been the practice[14] to control the amount of sludge in the aërating chamber by withdrawing a sample from time to time and reading the volume to which it settles in a given length of time. Our experience led to the observation that where the sludge was exceedingly light and feathery in appearance, it did not have the same purifying effect as when a denser sludge was employed. In order to determine whether there was any distinct relation between the volume and weight of these settleable solids, we have plotted in the diagram (Figure 9) the volume against the weight. These points indicate that there is no definite relation between these two values. For example, taking four samples of sludge which settled to 50 per cent by volume, we observe that one contained

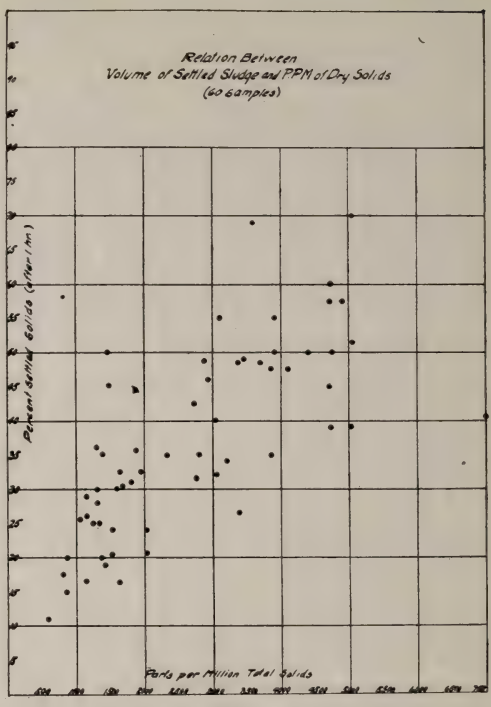


Fig. 9

1,500 parts per million of dry solids, a second 3,800 parts per million, a third 4,400 parts per million, and a fourth 4,750 parts per million. And again taking three samples of sludge which contained approximately 5,000 parts per million of dry solids, we see that one settled to 70 per cent by volume, a second to 52 per cent by volume, and a third to 38 per cent by volume. In a third case two samples settling to 40 per cent by volume showed 3,000 to 7,000 parts per million of dry solids respectively. With as wide and irregular variations as these, it is apparent that in our case at least it is impossible to judge the effective amount of sludge by sedimentation. If the variations were only slight it might still be possible to operate using sedimentation, but when the variation becomes so great that the volume figures would indicate opposite procedure to that of the weight figure, it is necessary to change the method of control. For example, during one period of operation the aëration chamber was carrying about 70 per cent

by volume of sludge, yet this sludge contained only 1,500 parts per million of dry solids. Judging from the volume, one would have said that too much sludge was present, but from the weight there was evidently not sufficient sludge present. Instead of drawing sludge, as the volume data would have led us to do, we actually returned sludge to the system, with the result that conditions were improved.

Purification Results: The operating data and the results of 15,000 chemical analyses are compiled in a complete series of tables too voluminous for reproduction here. A compact summary, or general average of all data, is shown in Table V. It will be noted that from June 16 to July 31, a light sludge was obtained which was allowed to overflow, the idea being to determine whether this light sludge would continue to form under the conditions of operation, or whether it would gradually increase in density. Leaving out this period, we see that the average turbidity of the influent is 234 parts per million, while that of the effluent is 48. The oxygen consumed from permanganate is decreased from 58 to 33 parts per million, while the nitrate is decreased from 2.1 to .90 parts per million. The relative stability, using the methylene blue test, averaged 2½ days or 43 per cent on a ten-day scale.

TABLE V

AVERAGE ANALYSES OF 234 SAMPLES

From May 3 to September 3
(Sewage treated: 9,466,000 gallons)

SCREENED SEWAGES

	Maximum	Minimum	Average		Average excluding June 16-July 31*
Settleable solids (1 hr. Imhoff cone)	0.47	0.13	0.26%		0.26%
Turbidity	447	129	237		234
Residue on evaporation	1560	840	997	ppm.	1007
Chlorides	195	62	113	ppm.	109
Alkalinity (Methyl Orange)	493	237	420	ppm.	405
Oxygen consumed (from $KMnO_4$ ½ hr. 100°)	103	25	59.3	ppm.	58
Free ammonia	24.6	7.2	16.4	ppm.	15.5
Albuminoid ammonia	11.3	0.9	4.2	ppm.	4.2
Total organic nitrogen	40.0	4.0	12.3	ppm.	12.1
Nitrate nitrogen	14.6	0.1	1.4	ppm.	2.1
Nitrite nitrogen	0.59	0.0	0.15	ppm.	0.26

EFFLUENTS

	Average of 234 samples	Average excluding June 16—July 31*	
Turbidity	68	48	
Residue on evaporation	863	828	ppm.
Chlorides	114	107	ppm.
Alkalinity (Methyl Orange)	405	398	ppm.
Oxygen consumed (From $KMnO_4$ ½ hr. 100°)	35.8	33.0	ppm.
Free ammonia	14.8	15.1	ppm.
Albuminoid ammonia	2.2	1.7	ppm.
Total organic nitrogen	7.9	5.7	ppm.
Nitrate nitrogen	0.69	0.90	ppm.
Nitrite nitrogen	0.10	0.10	ppm.
Relative stability (Methylene Blue)	(2½ days)	43	%

*From June 16 to July 31 sludge was allowed to overflow tank No. 2 with the effluent.

Over shorter periods considerably better results were obtained, as is shown in Table VI.

Here it will be observed that average stabilities of 56 to 87 per cent respectively were obtained.

TABLE VI

March 14-27			March 28-Apr. 3	
	INF Av.	EFF Av.	INF Av.	EFF Av.
Turb.	182	52	152	22
O_2D	43.5	20.7	41	30
Alb.N	2.3	1.7	1.84	1.39
NH_3	10.07	10.7	11.3	9.6
NO_2	.49	.32	1.05	.75
NO_3	4.1	1.75	7.8	8.2
Av. stab. 56%			Av. stab. 87.4%	
Range 21 to 95+%			Range 50 to 95%	

For the purpose of answering frequent inquiries the bacterial count on the raw and treated sewage was determined over a ten-day period. These results are set forth in Table VII, and indicate in general a 90 to 95 per cent removal of total organisms.

TABLE VII

INFLUENT

Lab. No.	Collected	Bacteria per c.c. Agar
45328	June 3, 1921	135,000
45330	" 4, "	45,000
45334	" 5, "	162,500
45347	" 7, "	680,000
45364	" 8, "	228,500
45378	" 9, "	260,000
45384	" 10, "	650,000
45387	" 11, "	280,000
45391	" 12, "	380,000
45395	" 13, "	585,000

EFFLUENT

Lab. No.	Collected	Bacteria per c.c. Agar
45329	June 3, 1921	1,170
45331	" 4, "	1,950
45335	" 5, "	6,500
45348	" 7, "	9,800
45365	" 8, "	1,350
45379	" 9, "	19,500
45385	" 10, "	45,500
45388	" 11, "	21,000
45392	" 12, "	27,000
45396	" 15, "	6,500

GENERAL OPERATION

In Figure 10 we have plotted the different amounts of raw sewage treated, sedimentation periods, aërating periods, amount of air used, and stability from May 3 to September 28.

In this diagram it may be seen that the amount of sewage treated varied from 93,000 gallons per day to 62,000 gallons per day, while the aërating period varied from a little less than seven hours up to

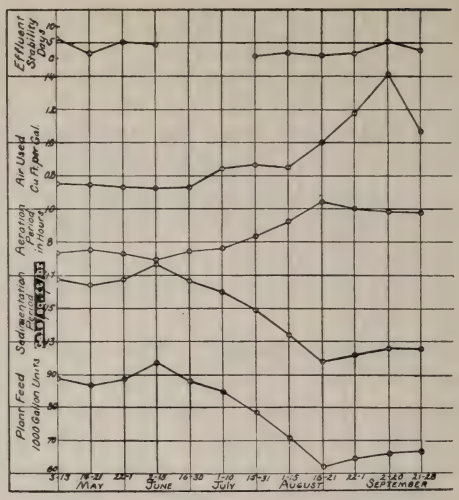


Fig. 10

a little more than ten hours. The amount of air varied from approximately .7 cu. ft. to 1.41 cu. ft. When compared with the previous diagram it is noted that with high nitrates in the raw sewage, a flow of approximately 90,000 gallons per day was treated with about .7 cu. ft. of air, and employing a seven hour aëration period, giving at the same time very satisfactory stability results. With a decrease in nitrates, however, it was necessary to increase the amount of air and decrease the flow, so that equally satisfactory results were obtained using approximately a ten-hour aëration period and 1.4 cu. ft. of air.

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COMMUNITY ORGANIZATION IN THE ANTI-TUBERCULOSIS CAMPAIGN

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An address delivered before the School of Public Hygiene of the University of Pennsylvania, Philadelphia, on October 22, 1921

GIVEN the responsibility of the tuberculosis problem in a community, what steps should be taken by a health officer in discharging his duty and in organizing all the available and necessary forces?

In a brief paper on the subject it is possible to touch only on the high spots of such a large and difficult health problem, but this has its advantages if one limits himself to a statement and examination of the methods which have had the test of practical experience. It will be at once stated that only the most economical and direct measures should be developed in a new and unorganized community.

Answer must first be given as to why there is still, and will be for quite some time, a necessity for stressing the fight against tuberculosis. It is a disease which still causes one-tenth of all deaths. In a city like Philadelphia, therefore, unless something miraculous is developed unexpectedly, 180,000 of the present population are doomed to die from this so-called "preventable disease." Furthermore, the findings of the Framingham, Massachusetts, tuberculosis experiment have revealed that there is living in a community an average of nine active cases of tuberculosis for each death. Also, tuberculosis picks the majority of its victims among adults between twenty and forty-five years of age, thus taking the most valuable producers of the community. Finally, the death-rate among men is almost twice as high as among women.

I. SURVEY THE COMMUNITY FIRST

A survey of the amount of tuberculosis in the community should be the essential preliminary step before anti-tuberculosis work is started. The number of deaths the disease causes annually should be ascertained. A study of the individual death certificates should reveal where most of these deaths occur. There can be no organization which will meet the tuberculosis problem with success unless it also realizes the difference in susceptibility to, and the greater or lesser amount of the disease among certain racial elements of the population. Towns, or sections of a city, with a larger proportion of colored, Irish, or German stock, will have a greater amount of tuberculosis for a given number of people than those which contain only racial groups who, with a longer past history of city life, have developed a certain immunity—such as the Jewish, Italian and English stocks. In the survey of the community a study of the principal industries in which the population is engaged should be included. It must be remembered, since tuberculosis prevails mostly during adult life, and among men especially, that conditions of work and industrial hazards are probably the greatest factors in the cause and development of active tuberculosis. Finally, a responsible tuberculosis officer will take stock of the community resources, namely, the existing health institutions, the relief societies, and all the organizations engaged in public-health work, especially those who do home visiting or nursing.

It will be assumed that the organized community will have a proper sanitary code which will include compulsory tuberculosis registration. This preliminary measure, more than any other, is of

fundamental importance if any knowledge of the everyday problem of the living cases of tuberculosis is to be had. The information furnished by mortality returns is too belated for the effective care of the sick and the protection of the community. There can be no real sanitary follow-up work unless there is quick and timely registration of cases of tuberculosis as soon as they are discovered. Concerning registration of tuberculosis, it should always be remembered that it will be abortive of its original purpose unless it equally includes the reporting of cases not only when first discovered but also at the time of their disposal or of passing from under observation by medical authority; that is, the private physician, whether he notify first or it be ascertained through a department of health questionnaire, must also let the authorities know that a tuberculosis case is no longer under his care; the dispensary, as well as the hospital, must report that a tuberculosis case has been discharged. Registration otherwise will quickly accumulate a large amount of dead wood and be discredited. On the contrary, if registration is adequate and continuous as long as a tuberculosis case is neither cured nor ended by death, the knowledge of the number who are under the care of private physicians, or under the care of institutions, or who remain at home will become known and will be invaluable in assisting the officer to know his full problem and where he must meet it. He can then marshal every resource and agency for an adequate control of tuberculosis.

The health officer, having ascertained the amount of tuberculosis in the community, having become acquainted with the conditions that make for a greater or lesser number of new cases, and having listed all the available resources, should then plan, first, for the active care of the sick, and second, for the protection of the community and the prevention of tuberculosis in the general population.

In the plan for active work and care of the sick the first and best support must naturally be sought among the medical profession. The tuberculosis officer must interest the best elements of this profession and all those better equipped by experience in the care of the tuberculous.

II. DISCOVERY OF TUBERCULOSIS

For the discovery and home care of the tuberculous individual, no better instrument has been fashioned or developed than the tuberculosis dispensary. It must be first stated that any plan which anticipates caring adequately for all the tuberculous in the community must be one which remembers that tuberculosis is first of all a home problem. In New York City, for instance, where for years there has been a very effective and intelligent registration of living tuberculosis cases, the following grouping of patients has been revealed: Among a total of 27,252 cases registered on October 1, 1921, there were 2,568, or 9 per cent, under the care of private physicians; 3,271, or 12 per cent under the care of tuberculosis clinics; 3,523, or 13 per cent, in city hospitals; 3,399, or 13 per cent, were out of town or in sanatoria; 4,889, or 18 per cent, were homeless or lodging house cases and patients who had recently been lost track of; and finally, 9,602, or 35 per cent, were remaining "at home," not under medical care. Altogether only 26 per cent were in institutions, and the remaining 74 per cent of the known cases in the city were a home problem.

The utilization of the tuberculosis dispensary as against hospitalization is much more economical and, through its home follow-up of cases, the only agency really reaching the home ground of the disease. The tuberculosis clinic is also a health clearing house for both the tuberculous and the other members of the community in need of examination. It should also be a center for health education. It can even be effective for treatment, and lastly can do a great deal in the work of the prevention of tuberculosis.

Experience has shown that the best use of the tuberculosis dispensary demands certain facilities and methods of work. It cannot fulfill its primary useful function of diagnosis unless it has access to an X-ray department and laboratory facilities, and has a competent staff of specialists, or the benefit of expert consultation service. Further, if possible, it should have some means or facilities for the observation and study of doubtful cases. Any diagnostic work in tuberculosis which is dependent only on physical signs revealed by examination, and not on an equal study of the symptoms of active tuberculosis, will be inferior and there will be lost a number of patients in need of treatment. The well organized tuberculosis dispensary will segregate its groups of patients and will find it advantageous to have separate clinic sessions for adults and for children. It should also be open on certain evenings to facilitate the attendance of working men. It may well have separate sessions for the colored, and can best handle foreign groups by having a nurse in attendance speaking the language of the larger groups.

From the previous remarks it may be concluded that the time has arrived when it must be said that the best dispensary work possible will be accomplished when it is conducted as an extension of hospital work. Only where the necessary accessory services are to be found, such as in a hospital or in a general dispensary, can the much needed preventive work for the correction of physical defects among those in contact with tuberculous patients be attended to.

The tuberculosis dispensary must include in its work home visiting and follow-up by trained public-health workers. The combination of a tuberculosis nurse with social service experience is the best. The nurse who at the same time is in attendance at the clinic where the patient calls and becomes acquainted with the physical condition of her charges will likewise do better home work. Moreover, she will more understandingly help the patient to carry out at home the advice of the physician. Then too, the clinic nurse who is familiar with the home conditions of her patients can furnish the physician invaluable additional facts when the patient returns for treatment. The tuberculosis nurse's work demands that she have supporting her effective social service connection, be it in the form of an auxiliary committee or by the social service department of the hospital where the dispensary is established.

The ordinary tuberculosis dispensary has become a place for diagnosis mainly rather than for treatment, and yet, as already pointed out, tuberculosis is mostly a home problem. There should be special consideration by dispensaries, especially in smaller communities where there may be more open air facilities around the homes, of the tuberculosis class method developed so successfully by Dr. Pratt of Boston. The class method is primarily the utilization of home facilities first rather than the disturbing costly method of sending patients to institutions. It consists in assembling periodically groups of patients in the earlier stages of tuberculosis to meet a competent physician, and the promotion of cure-taking at home with the assistance of a nurse who visits the patients somewhat more frequently than is usually done in ordinary dispensary follow-up work. It is most feasible with patients in the incipient or moderately advanced stages and who have at home some porch or easy access to the open air. Above all, it demands the inspiration of a competent physician and of a real social service nurse familiar with cure-taking.

Finally, for thorough dispensary work the community should be districted. It is probable that in any fair sized town there should be several such institutions opened. All parts of the city and all citizens are entitled to, in a long drawn out battle like that of tuberculosis, equal assistance and protection from the authorities. An intelligent districting of the

community for dispensary purposes reduces the distances which a patient may have to come for care as well as the time and space to be covered by the public-health visitor. Where much ground must be covered, it has been found economical for a staff to cover many points with occasional but regular branch sessions from an existing main dispensary. Of late years it has been found useful to lay out the district boundaries for dispensary work on the same lines as those followed by the federal census in enumerating the population. It should enable the health authorities to compute very accurate rates of morbidity and mortality occurring in known populations by sanitary areas.

III. INSTITUTIONAL CARE

The dispensary, having found the new cases of tuberculosis and assured a certain amount of home care, quickly reveals that there is a proportion of them who are obviously in need of institutional care. The two broadest groups into which these patients usually fall are those in the early or ambulant stage, and the advanced or bed cases. For many of the early or ambulant cases the sanatorium in the country or in some place which affords a change from city life is needed. Experience shows that, generally speaking, it is the younger people or those without many social ties or family dependents who usually can or will accept the advice to leave home. This has often given rise to the statement that tuberculosis was mainly a disease of the young. However, dispensary experience, where all types of cases are found, does not warrant this generalization. There is a large group of mothers or fathers of families, and others who have dependents, who are also early cases but who cannot consent readily to leave home. For them it has often been found that almost equally good results in the treatment of their disease can be obtained by merely having them attend a day camp that should be attached to the dispensary or nearby hospital. Returning home at night they can discharge a measure of responsibility and exercise a certain amount of supervision over their families, and yet during the day follow the open air and rest régime as well as in the country. Day camps can be operated on the roofs of hospitals or decks of old boats, or almost any place where there is open space, provided some kitchen facilities can be added for the noon meal which is usually furnished by these institutions. The day camp can be operated for one-third the cost of a sanatorium or of a hospital. Furthermore, the education of the family of the patient and the improvement of home conditions are much more effectively accomplished when there is the daily return of the improving patient demanding and showing the results of better health habits.

For the bed or dying case of tuberculosis, every community should have provision either in a special local hospital or in some separate ward arrangement in connection with the general hospital. The dying tuberculous patient, especially in homes where there are children, must, whenever at all possible, be segregated.

In the well organized community there should also be provision for the hospital reception of patients during acute periods of their disease. The local tuberculosis hospital should provide for the patient equally good open air facilities as does the sanatorium. Treatment should be modern and of the best. It cannot be expected that sick patients will readily accept going to the hospital when perhaps they have already had or seen what the sanatorium offers, unless the hospital gives them the same comforts and attention. Good results will be impossible for patients who enter the hospital during periods of exacerbation of the disease unless these open air facilities are available. Finally, the tuberculosis hospital should be readily accessible for visiting by the relatives of patients. It is far better and more humane to make the tu-

berculosis hospital what it should be rather than to advocate forcible removals.

For tuberculosis in children, institutional provision will be required for the surgical type rather than for the pulmonary. Experience has shown that with the former, the open air and sanatorium method in the mountains is not the best unless it includes a great deal of direct sun or air baths upon the naked body. The best results with surgical cases of tuberculosis can be had in the marine sanatorium, that is, where children may get all the stimulation to be had from salt water bathing, the more powerful sunshine, and the more invigorating air of the seashore.

IV. PREVENTION OF TUBERCULOSIS

After the tuberculous patients in the community have been cared for, the still greater problem of the prevention of tuberculosis in the population at large remains for the tuberculosis officer, and, before reaching the broad public, he must first dispose of those more directly in contact with the tuberculous case, namely, the family of the patient. Through the dispensary he can see to it that all members of the family in contact with the tuberculous patient are examined. The remedying of physical defects and the improvement of home conditions will go a long way toward saving the remaining exposed members of the family.

Work with the children from tuberculous families should be especially thorough. They are of the coming generation and should therefore receive the fullest attention. All should be examined, weighed, and their physical defects remedied. The full reaping of good medical and social work can be best assured by the organization of nutrition classes for those who are below standards of health. For children who do not respond quickly through the improvement of home conditions there should be provided open air classes or preventorium care. Finally, summer care and outings should be considered.

It should be especially remembered that in childhood there are two periods of greatest danger from tuberculosis, first among infants when the highest mortality of any age from tuberculosis occurs and second, during adolescence when, with the advent of puberty and entrance of the majority into industry and the working world, the first great crop of tuberculosis of adult life occurs. Protection against the first danger, in infant life, lies in absolute cleanliness of the milk and food supply and in the removal of open cases of tuberculosis from their surroundings. The adolescent period, from a tuberculosis standpoint, requires even more careful supervision than the school period in building up strength.

Passing from the care of the tuberculous family, the tuberculosis officer comes upon a larger problem, namely, the protection of the community. This can best be accomplished through the development of educational work.

The public educational program must first include the medical profession. Education in tuberculosis and facilities for practical experience concerning it should be provided in both the undergraduate training period and postgraduate work of physicians. A tuberculosis consultation service and medical meetings for tuberculosis should be promoted.

The tuberculosis officer is interested likewise in seeing that the public-health worker, especially in the visiting field, is adequately trained in tuberculosis work. This training should include experience not only in hospital wards but in sanatorium régime also, and in visiting experience as well as in social service.

No effective tuberculosis work can be carried on in a community unless it has the best and fullest support of the public at large. Business methods point out the way. There is the all-permeating public press; the tuberculosis officer should not disdain filling health columns and answering questions, instead of leaving it to the quack. Attractive posters with a mes-

sage of health and information as to where to secure authoritative advice and the best care should be displayed throughout the community. Lecture service should be extensive and should support dispensary work, promote general examinations and reach the working man especially. There should be traveling health exhibits with qualified attendants, as well as permanent miniature exhibits wherever they will do good. The motion picture offers artistic presentations of health messages. Labor education should be insisted upon and should be devoid of all taint of being promoted only for the employers' benefit. Attractive popular literature should be distributed broadcast; some of it should be in foreign languages. Finally, the children still in school must be reached. There is the modern health crusade method, the health clowns, and there are the attractive health primers available nowadays.

In securing public support, the tuberculosis officer will get in contact with the best, as already stated, not only in the medical profession, but he will also closely coöperate with social agencies and will try to interest public-spirited men and philanthropists. He will see business men and will work through churches and women's clubs and any other community organizations which stand for progress and organized usefulness. The tuberculosis officer will be interested in the promotion of all public-health programs. He is interested in a clean milk supply, in school medical inspection, in factory inspection, in tenement legislation enforcement, and above all, in industrial hygiene. Finally, good, efficient organization demands that there be coördination of work among dispensaries, tuberculosis institutions and health agencies. And, if the voice of the statistician may be added, the tuberculosis officer will always keep his feet on the ground and keep well informed, securing all his facts first as to the extent of the tuberculosis problem before making recommendations and undertaking new work.

CONCLUSION

To summarize, community organization against tuberculosis demands:

First, surveying the extent of its ravages and prevalence.

Second, listing the resources available against it.

Third, registering all living known cases for sanitary follow-up work.

Fourth, providing dispensary facilities for the discovery and home care of the tuberculous.

Fifth, opening sanatorium and hospital beds for the patients in need of them.

Sixth, protecting and strengthening those directly exposed to tuberculosis.

Seventh, enlisting all public support possible.

Eighth, developing general public education of the broadest character as to the nature and prevention of tuberculosis.

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REPORT OF THE COMMITTEE ON RURAL HEALTH ADMINISTRATION

Read before the Public Health Administration Section of the American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 14, 1921, and adopted by the vote of the Section

SINCE the last meeting of the Association there have been no material developments which would alter the stand previously taken by the Committee relative to rural health administration in the United States. The experience of the past year has served only to emphasize in a most striking manner the soundness and success of the coöperative principle in rural health administration. Where it has been operative, rural health work has become tremendously popular. This condition is due not alone to financial aid furnished to local health work, but also

to the advisory and supervisory system, which is an essential adjunct to the financial aid extension. So much is this true that few, if any, of the health officers working under a system of this kind could be persuaded to work under independent conditions.

By the coöperative principle the local health units, therefore, profit through both the financial subsidy afforded and by greatly increased working efficiency. The demand for the coöperative principle on the part of local health organizations is, accordingly, most insistent.

The experience of state boards of health with the coöperative principle has been no less satisfactory. The conviction is growing ever stronger that the road to expansion on the part of the state health organization lies through strong and active local units, more especially in rural communities, as these are otherwise practically beyond the reach of state forces.

From the national standpoint, the need for effective health administration in rural communities creates an ample and compelling argument for federal participation, not on a fractional, but on a broad and comprehensive scale. It continues to be true that industries, professions and politics recruit their leaders largely from rural districts. Better health and living conditions will contribute more and stronger men for such important national activities. The proverbial high cost of living has its tap-root in farm products. It is a settled fact that there is a strong tide of migration from the farm to towns and cities. The growth of cities and industrial centers takes place constantly at the expense of rural districts, which means on the one hand that the demands for food supplies by nonproducers have enormously increased, while on the other hand the production facilities have fallen off at an equal and opposite rate. The farms, therefore, are sparely manned, production is curtailed, and food prices must remain high. Or, on the other hand, where it is possible to maintain a working force on the farm, it is only through competition with an elevated scale of prices offered to labor at the industrial centers, with the same end result, namely, that the city consumers of food products have to bear the burden of this unnatural condition in their grocery bills. One important avenue of escape from this vicious circle is to keep the rural population at home, and to do this the one essential principle is to make farm life more healthful and attractive.

Nor are we without a poignant example of the dependence of national existence upon rural reserves. Armies always have and always will travel and fight on their bellies. Where would America or even modern civilization have been to-day had it not been for the American farm? Not only did the American farmer ration our own splendid army, but also, in large part, the armies and peoples of all other nations that shattered the powers of darkness and barbarism. In addition to this, the American farmer contributed his full portion of man power to the military forces and industries essential to a steady stream of munitions and other supplies.

In view of these facts, the Federal Government cannot ignore any duty or opportunity that would strengthen rural life. Coöperative federal aid extension is a well established principle that is applied to the improvement of all farm products, except the greatest, namely, the farmer and his household. Any influence that would damage or destroy the efficiency of the farmer himself would likewise lessen the dividends derived from federal money invested in agricultural extension work. Since the work that has already been done in coöperative rural health administration has proved that handsome returns in prevention of unnecessary sickness and death are obtainable, it is the unqualified belief and conviction of the Committee that the appropriation of federal aid extension principle to all rural communities through state health departments constitutes the best investment from the standpoint of economy to the entire nation

that it is possible for Congress to make.

Throughout this Report the term "rural" has been used. This, of course, must be understood to include all communities except those large enough to be called citites, as the problems of the smaller towns and villages are essentially those of the farm. It will be noted also that the term "county" has been studiously avoided, since the rural unit is not always the county. In contemplation of the federal aid extension principle, it is immaterial whether the local unit be a county, township, or district. More especially is this true in view of the attention now being given to the possibility of subsidizing local activities on the basis of work accomplished, rather than the organization in charge.

Federal aid extension for the betterment of the public health should all be concentrated in and through the United States Public Health Service as it now stands, or may be in the future constituted.

The Committee desires to emphasize the fact that a balanced program in rural health work is at once the most economical and most effective, wherever permanency is intended. This principle is coincident with one which is still more fundamental, that there are certain public-health duties which must be recognized as essential to any program of organized rural health administration.

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OBJECTIONABLE FORMS OF PENNY CANDIES

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Read before the Food and Drugs Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 14, 1921

CONFECTIONERY has an admitted food value and is therefore properly classed with foodstuffs and comes under the jurisdiction of food laws, although little of it is eaten at mealtime or with the intent of supplying nourishment or of satisfying hunger.

This extra calorific intake is sometimes the cause of alimentary disturbances, and frequently confectionery is blamed for illness and is suspected by the ignorant or ill-informed of containing poisonous or irritating substances, when the fault lies, not with the article itself, but in the misuse of it. Even Disraeli speaks of "the irreclaimable and hopeless votary of lollipop, . . . the opium eater of the schoolboys."

Children are responsible for an enormous consumption of candy and manufacturers being well aware of this, constantly cater to their trade by originating novel and appealing forms. Most of these are sold at a low price. A child with a penny can always purchase something in the candy line at one of the stores which strive to attract and hold this kind of trade. These stores are usually small, situated in congested neighborhoods or near schoolhouses in the large cities and are generally owned or are in the charge of persons of rather limited intelligence, who are either oblivious of or incapable of appreciating their responsibilities in this connection.

There has been a great improvement in the main, in recent years, in the character of many of the penny candies which are offered for sale to children. Most of them are made of wholesome materials and an increasing number of them are appearing in wrapped individual pieces, thus minimizing the danger of contamination from handling or exposure.

The competitive effort on the part of rival manufacturers, however, has led them of late into lines which are deserving of censure on account of the potential harm which may result. I refer specifically to the types of candy made in the form of playthings. The fundamental idea is not a new one, for who does not remember Eugene Field's sugar plum tree where the gingerbread dog chased the chocolate cat through the branches.

Christmas cookies are often made in animal or bird forms and the clear candy toys of the holiday season are sometimes used for decorating Christmas trees. The "animal crackers" of the groceries are a perennial delight to children. Sometimes these cakes, candies and crackers are played with and subjected to contaminating handling.

Of recent years, however, the candy novelties in the form of playthings have developed along entirely different lines, some of which are emphatically subject to disapproval. The majority of these objectionable forms are made of so-called licorice candy. And I use the expression "so-called" advisedly for many of them contain little or no licorice, the color being due to a little carbon black (lampblack) and the flavor to oil of anise. Most persons, children and grown-ups, confuse anise and licorice flavors, because they are usually associated, so the manufacturer takes advantage of the fact and makes a black confection, flavors it with anise, and then often puts a warning note on the box: "These goods contain no licorice," which is ignored by the seller who supplies them when licorice is asked for.

The component parts of this material, which is now made up into so many different forms, are sugar, glucose, starch or flour, flavor and lampblack, with sometimes a little licorice added to give warrant for the name. These ingredients in themselves are not indigestible nor harmful, but it is the manufacturers' evident intent to make something durable in the way of a confectionery novelty, so he combines his ingredients to make a tough, flexible mass which can be drawn, rolled or moulded into any desired form and which is tough and resistant, hard to chew, slow to dissolve, and represents the acme of indigestibility.

Some of the objectionable forms in which this mass is then prepared for sale are as follows: long hollow tubes like a section of rubber tubing, through which children suck up water or beverages or through which they blow their breath, long flexible solid strips, called by the manufacturers, "shoe laces," bead-like strings of the material called "necklaces," often worn by children before eating them. The latest form that I have seen, and one concerning which definite complaints were made to the Philadelphia Health Department by parents who stated that children had been made ill by them, is "pocketbooks." These resemble leather in texture, and are made in the form of a small flat purse with a flap and a coin compartment, in which are placed several disc-like sugar wafers representing money.

The obvious intent of these candies is to encourage children to play with them. The novelty appeals to the child and the result is that a piece of confectionery, which as to its texture merits severe criticism on account of its obvious indigestibility, is carried around and played with, subjected to all kinds of contaminating handling and then eaten finally.

There are probably many other forms besides these which I have described, which merit criticism for the reasons stated. There is obviously no law at present under which such confectionery forms can be prohibited. Possibly regulations adopted by boards of health in communities where there is a responsive spirit will answer in some cases. Publicity and education, however, are the main compelling forces which aid in bringing about such reforms. Condemnatory resolutions by national, state and local health organizations, and protests to the Na-

tional Confectioners' Association for transmission to the offending manufacturers, are the methods which will give prompt and satisfactory results.

These manufacturers are very keen to merit public confidence and when the situation is placed fairly and squarely before them with the weight of organized effort back of the protest, I believe that improvement will be rapid and permanent.

I therefore recommend that the Section of Food and Drugs of the American Public Health Association express its disapproval of objectionable forms of candy playthings such as purses, necklaces, etc., and instruct its secretary to take up the matter of formulating a definite protest for communication to the proper officers of the National Confectioners' Association.*

*Professor LaWall's recommendation to communicate with the National Confectioners' Association was favorably acted upon by the Section.

THE TREATMENT OF SWIMMING POOL WATER WITH ULTRAVIOLET RAYS

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Read before the Sanitary Engineering Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 17, 1921

MANY factors have combined, in recent years, to promote the use of the indoor swimming pools. The ever increasing contamination of our lakes and rivers with domestic and commercial waste is rapidly forcing those who seek safe bathing away from the natural out-of-door bathing beach. The "old swimming hole" no longer exists in the degree of purity and inviting appearance in which it did 50 years ago. The municipal bathing beach and the bath house facilities provided in the large cities on our lakes and rivers have been found far from adequate for the public needs. In Chicago, Cleveland, and Detroit, difficulty is experienced in maintaining the water in safe condition, and the fact that the period of use of appurtenances is but three to four months at most, brings the cost, in many instances, very near that of an indoor pool.

The ability to swim is now a common requirement for graduation from high school, and the pool is, therefore, a part of the standard equipment of most new buildings.

With greater use of indoor pools, the public is demanding that a higher sanitary standard shall prevail. It is no longer sufficient that the water be clear. The patrons, as well as the swimming instructors, are learning the significance of bacteriological results, and show a keen appreciation of the results obtained by the method of treatment employed.

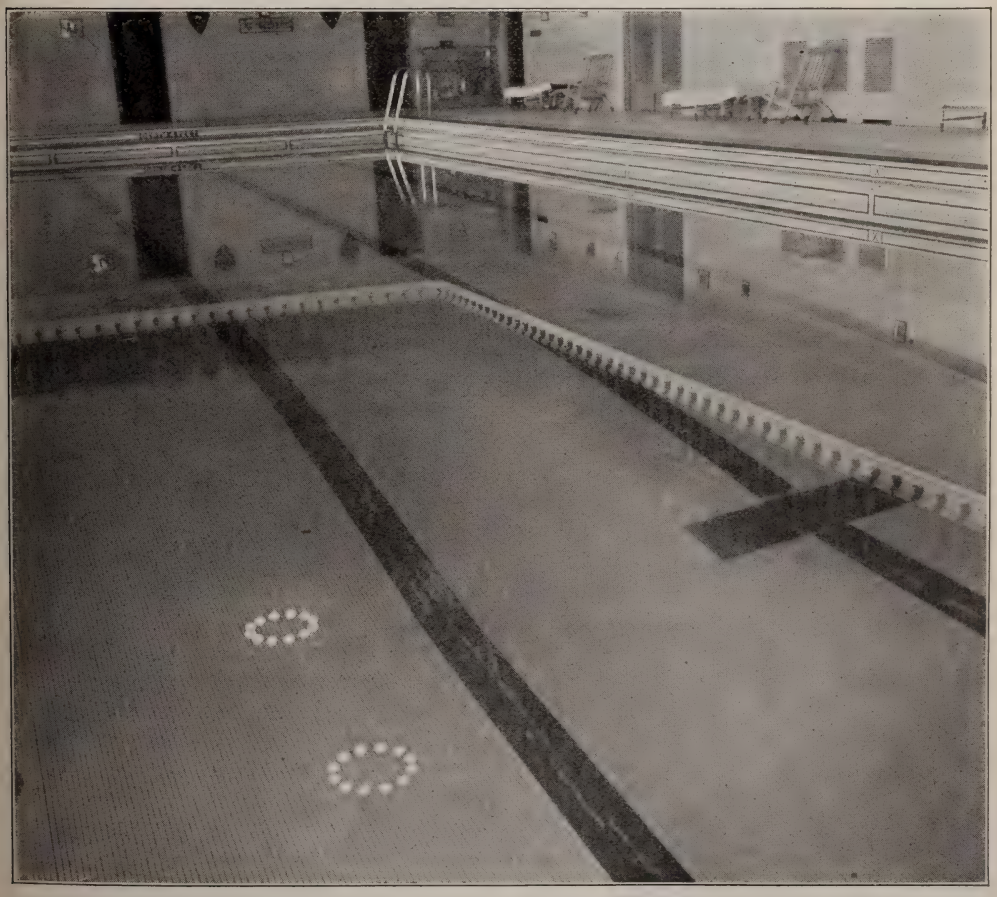
A high degree of efficiency of operation coupled with ability to give nearly continuous service is now required of treatment plants. The treatment of swimming pool water has developed more rapidly than the treatment of municipal supplies. There was first a period of draw and fill, when the only treatment was to fill the pool and after some use empty the water to waste. This may be compared with the period when cities confronted with a contaminated water supply sought a new source which was as yet undefiled. Second, came the period of filtration, when in most instances the water from a contaminated source was filtered, to render it suitable for use. Next came the period of sterilization when the load became too heavy to be handled by filters alone, and some form of sterilization had to be provided to take care of the overload.

From this point on, the problem of municipal supply and swimming pool treatment begins to differ essentially. The municipal supply has reached its goal of

delivering pure water to the consumer, but the swimming pool is, by the nature of its use, continually contaminated. The danger, which is believed to exist as a result of this continuous contamination, is not infrequently questioned, and the argument is put forth that the instances of disease, which have been traceable to swimming pools, do not at all compare with the number of patrons. We find the explanation of this seeming discrepancy in the fact that the virulence of many pathogenic organisms decreases rapidly outside of the human body. Infections, therefore, are probably in most cases limited to the group using the pool at the same time, so that the infectious material while still fresh, is washed onto the mucous membranes.

The supervision of the bathers, requirement of preliminary baths, and other common items of sanitary control, will do much to maintain a safe water, but are not in themselves sufficient. Just as in the protection of our milk supply we must rely on pasteurization, even though we have dairy inspection, so in our swimming pools we must rely on a carefully planned method of water treatment, even though a first line of defense is thrown up in the form of sanitary supervision of the bathers.

It has been the good fortune of the writer to have an opportunity to make a rather complete study of the operation of a well built and carefully operated swimming pool at the Detroit Athletic Club, and I believe the results are of such



Swimming Pool, Detroit Athletic Club

a nature as to be of interest to all who are confronted with the problem of swimming pool treatment.

The pool under consideration is located on the fourth floor of the building with exposure on the south and east sides, so that it is adequately lighted during the daylight hours. The plan shown herewith, Figure 1, gives details as to size, shape of bottom, scum trough, inlets, outlet, and water distribution system. The capacity of the tank to the scum trough is 80 thousand gallons. Attention is directed to the arrangement of the inlets. There are 22 in all, placed approximately 8 feet apart around the pool at the bottom. These inlets are connected to a 3 inch header which runs entirely around the pool and connects again to the main, so that the head is uniform at each point and an equal volume of water is admitted by each inlet.

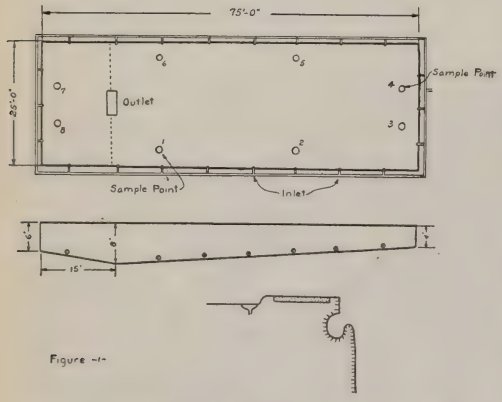


Figure 1

The outlet is at the center of the deep section, and insures positive circulation from all parts of the pool.

The treatment plant consists of two 84-inch hygeia pressure filters and a Type E-2-2 ultraviolet ray sterilizer. (Type E-2-2 consists of two units of pressure type 1,000 gallon per hour sterilizers, which, when operated in series will handle 5,000 gallons per hour.) The water is circulated through the filters, sterilizers and heaters by a directly connected centrifugal pump, adjusted as to speed to deliver approximately 7,000 gallons per hour.

The filters are larger than are ordinarily found in swimming pool practice, and were purposely made larger to permit the filling of the pool in about six hours. As operated, the rate of filtration is 1.7 gallons per square foot per minute, which is rather low for pressure filters. The filters are ordinarily used without alum except when the pool is being refilled with fresh water.

The study of this pool was divided into three periods of one week each as follows:

First period. During the first period the pool, after a thorough cleaning, was filled with filtered city water at the rate of 7,000 gallons per hour, and during the daily period of use, from 9 A. M. to 5 P. M., filtered water was supplied to the pool and the displaced water run to waste through outlet at the same rate.

Second period. During this period, the pool, after being filled with filtered and sterilized city water at the same rate as before, was supplied with filtered and sterilized water at the rate of 7,000 gallons per hour, the displaced water running to waste as in the first instance.

Third period. During this period, the pool after being filled, as in the preceding period, was supplied with filtered and sterilized water at the rate of 7,000 gallons per hour, by recirculating the water in the pool through the treatment plant.

A meter was installed on the supply line, metering all water going to the pool.

During the entire study bacteriological analyses of the water in the pool were made from samples collected in the morning, just before the pool was used, and in the afternoon, just after the peak load. Eight sample points were established as shown on the plan. A study of the individual and composite samples drawn with a pipette from each station, indicated the reliability of the composite samples, which were used as representing the pool. These samples were run following the standard methods of water

analysis. Plates were made of 0.1 and 1 c. c. portions, and complete records of attendance and temperature were kept. The pool is in general used by classes (both men and women) so that it was easy to establish the time of peak load, and there was very little use after the afternoon sampling period. For the most part the same individuals are concerned in all of the three periods, thus, the question of the effect of personal habits is eliminated.

In Table I is shown the results of examination of composite samples taken from the pool daily, morning and afternoon, during the three periods, as well as the average daily attendance, and the temperature of the water.

TABLE I.

BACTERIOLOGICAL EXAMINATION OF D. A. C. SWIMMING POOL
37°—24 HR. COUNT

	A. M.			P. M.			Av. dly. att.	Av. temp. of water	Water used.
	Max.	Min.	Av.	Max.	Min.	Av.			
1st. Per.	319	16	116	606	29	208	78	80	255,780 gal.
2d. Per.	77	9	28	110	17	64	66	81	244,020
3d. Per.	70	3	19	120	7	41	98	80	recirculates 7,000 gal. 1 hr.

Let us consider the results for the first period. Filtered water was added at the rate of 7,000 gallons per hour, yet the afternoon count is nearly double that of the morning. Figure II shows the rate at which purification is accomplished under these conditions, using Gage's formula.* This would indicate that a 50 per cent purification took place in the 8 hours of use. At the end of the sixth hour, which was the time of usual occurrence of the peak load, 42 per cent purification should have been accomplished. Samples of the filter effluent show an average count of 5 with a maximum of 10 and a minimum of 1.

Turning our attention to the second period when the rate of purification by dilution was the same as in the first period, the only difference in operation being the sterilizing of all water furnished to the pool, we had still a considerable increase of afternoon over morning count, but what is more remarkable, an average count which is but one quarter of the average during the first period. It is true that the attendance is slightly lower but the temperature is one degree higher.

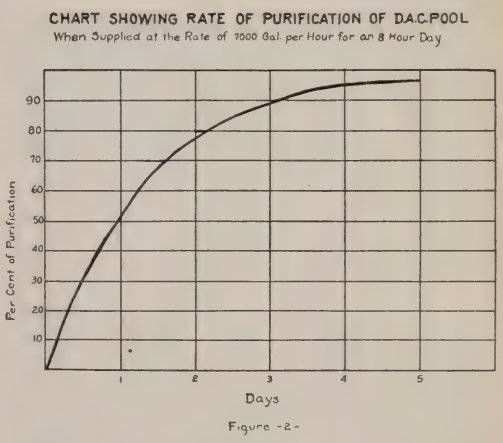


Figure -2-

Are we to presume that the lower attendance together with the fact that sterilized water was delivered to the pool are responsible for a drop of 142 bacteria per cubic centimeter in the average count after use? I, personally, do not believe so. There has been some evidence put forth in the last few years to show that the effect of ultraviolet rays on the bacteria in water is not confined to the short interval during which it is exposed to

*Note: Gage's formula $D=(\frac{V-v}{V})n$

D=portion of dirty water remaining.
V=volume of pool.
v=volume of water added at each dilution.
n=number of successive dilutions.

the direct rays of the lamp, but that the absorption of the radiant energy by the water renders it mildly germicidal. It would seem that the results of the second period are further evidence in the support of this phenomenon.

The results of the third period show a further decline in the bacteria content of the pool, both in the morning and at peak load, in spite of a 20 per cent increase in attendance. The presence of B. Coli in the pool, though not great, is of interest. During the first period, three out of twenty-four 10 c. c. portions developed gas. During the second period five out of twenty-six 10 c. c. portions showed gas, and three out of twenty-six 10 c. c. portions during the third period showed gas.

At no time were B. Coli shown to be present in 1 c. c.

It is of interest at this time to compare the yearly average operation of this pool during the fiscal year ending June 30, 1916, which was before the installation of sterilizers, with the past year. Table II shows these results.

TABLE II.

BACTERIOLOGICAL EXAMINATION OF D. A. C. POOL YEARLY AVERAGE

	37° Count			Coli. 100 c.c.
	Max.	Min.	Av.	
1916	216,000	0	26,700	350
1921	 240	0	61	0.75

It is, of course, possible that the sanitary supervision of the bathers was better during the first period of this study than during the entire year of 1916. However, the operation of the pool is under the direction of the same person, and the patronage is essentially the same.

Under the normal operation, the water in the pool is circulated continuously at 7,000 gallons per hour, 24 hours per day, which gives a purification curve as shown in Figure III. The water remains in use for periods of 5 or 6 months without fresh water being added except what is necessary (6 or 8 inches per day) to flush off the surface and to make up for loss over the scum trough.

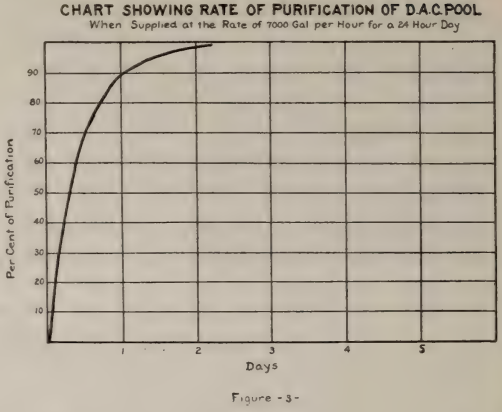


Figure - 3 -

The question of change of chemical content during long periods of use is frequently asked.

Table III compares the average of six chemical analyses of pool water after 5 months' use with the average chemical content of the city tap water for 22 months.

TABLE III.

COMPARATIVE TABLES OF CHEMICAL ANALYSIS OF D. A. C. POOL AND DETROIT CITY TAP WATER

	Average of 6 samples after 5 mos. use D. A. C.	Average of 22 monthly samples City Tap Water
Total solids.....	130.0	151.7
Non-volatile solids....	73.0	100.5
Volatile organic matter	59.0	51.91
Free ammonia	0.111	0.038
Albuminoid ammonia.	0.228	0.109
Chlorides	9.0	5.08
Nitrates	0.104	0.0224
Nitrites	0.0003	0.0

While there is a noticeable increase in the albuminoid and free ammonia, the chlorides and the nitrates, it is questionable if the increase is sufficient to be considered an obstacle in the way of recirculation. With water at 4 cents per thousand gallons and the central steam at 25 lb. square inch pressure at $1.05 per 1,000 lb. of condensate, the cost of treatment for the first and second period was $15.71 per day, as compared with $2.56 for the third period. This latter figure includes the interest and depreciation on the sterilizers.

The conclusions which we may safely draw from this study are:

1. That a high turnover rate and uni-

form distribution around the pool are most desirable features in swimming pool treatment.

2. That a bacteriological standard is indispensable in judging the condition of a pool, and should be used to check up any method of treatment employed.

3. That the supplying of a high grade of water to a well designed pool in large quantities and wasting to sewer will give a fair bacteriological result but is uneconomical in cost.

4. That sterilization by ultraviolet rays of swimming pool water in a recirculation system properly designed and operated gives a water in the pool which compares favorably with the government standard for drinking water.

□

DENTAL WORK AS A PROPHYLACTIC MEASURE IN IMPROVING THE PHYSICAL CONDITION OF EMPLOYEES

THADDEUS P. HYATT, D.D.S.

Dental Director, Metropolitan Life Insurance Company; Chairman, Oral Hygiene Committee of Greater New York

Read before the Industrial Hygiene Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 18, 1921

THE relation of dental defects to systemic conditions has been very thoroughly investigated and written about during the past few years. As is usual with the advent of new ideas, two schools of thought were quickly developed.

One school advocated extremely radical procedures, such as the ruthless extraction of all dental organs open to the slightest suspicion; the other school, ultra conservative, refused to accept the evidence shown by the remarkable restoration to health of many persons, after dental infection had been removed.

We must not allow the battle smoke of this hotly contested controversy regarding dental infection to blind us to the more important consideration of the part played in health or illness by unclean and unsanitary mouths.

It should be obvious to all that if pure water and clean wholesome food are really important factors for health, it is highly desirable to maintain the purity of the water and the wholesomeness of the food until it reaches the digestive apparatus of the individual, where it will be changed into a form that will be assimilated easily and thus sustain life and health.

It is here that the importance of mouth hygiene comes in. Of what avail is it to put pure wholesome food into a mouth filled with the decomposing debris of previous meals—of a mouth with diseased or broken down teeth?

Should it be surprising, then, that a procedure which brings about a continued clean and hygienic condition of the mouth should result in an improved physical well-being?

Careful and scientific investigation by Professor Gies, and Professor Kligler of Columbia University, shows that there is a reduction in number of at least 495 million bacteria per mm. in a fairly clean mouth as compared with a dirty one. This did not take into consideration a clean mouth.

It is safe to say the bacteria found in a clean mouth are practically harmless, while the bacteria that grow and multiply in a dirty mouth become virulent and dangerous. The long continued presence of bacterial masses in and around the teeth bring about inflammation of the gum tissues. Normal, healthy gums are practically impervious to bacterial invasion. But inflamed gums become open gateways for the entrance of harmful bacterial life into the blood-stream of the

body. Professor Jordan in "General Bacteriology" says:

"The portal by which bacteria gain entrance to the human body is of great importance in determining whether or not disease shall occur. Typhoid bacilli rubbed into the abraded skin may give rise to no reaction of importance, while the same microörganisms, if swallowed, may cause fatal infection. Conversely, virulent streptococci, when swallowed, may cause no harmful effects, while the same bacteria rubbed into the skin may give rise to a severe reaction."

The question of gum condition is therefore of great importance, as the human mouth always contains a large number of streptococci, and streptoccocus infection is made possible when the soft tissues of the mouth become badly inflamed.

Periodical prophylactic dental treatment must necessarily include X-ray examination, for it is only by the aid of the X-ray that we are enabled to ascertain the presence of abnormal conditions surrounding the roots of teeth.

In the Metropolitan Life Insurance Company's dental clinic, two cleansings of the mouth are given each year and X-ray examinations made of all teeth having crowns, bridges, or teeth with non-vital pulps. The work has been continued for a sufficient time to show certain results. Those who have come regularly twice a year since 1915 have the highest per cent of clean mouths and the lowest per cent of unclean mouths. Furthermore, the percentage of clean mouths has increased year by year and the percentage of unclean mouths has decreased year by year. This is true of all classes. A previously published table* illustrates this important fact.

Taking the figures of Professor Gies and Professor Kligler showing the reduction in the number of bacteria in fairly clean mouths as compared with unclean mouths, we shall readily see that there probably has been a very great reduction in the number of bacteria in the mouth of the employees examined at the Metropolitan Life Insurance Company's clinic. This fact may be accountable for the following rule issued by the president of the Company in 1919, making dental examination a requirement:

"The services rendered by the dental division since its establishment in 1915 have been so curative of impaired health conditions, and so permanently helpful to the employees who have taken advantage of the opportunities offered, that henceforth every home office employee will be required to undergo examination and cleansing of the teeth in the home office dental division twice a year. If the service of the family dentist is desired rather than that of the home office dentist, such examination and cleansings by him will be accepted, but they must be procured without expense to the Company and the employee must furnish a satisfactory certificate from him that the required work has been done."

(Signed) HALEY FISKE,
President.

The X-ray examination has likewise greatly helped in the improvement of the health and efficiency of the employees.

While we have not as yet had the opportunity to work this out upon a large scale, the results obtained in several cases may prove of value to those interested in welfare work.

Case 1. A man, forty-two years of age, suffered from anemia. Spent one year at the Company's sanatorium. No improvement. In April, 1916, two infected teeth were extracted and in April, 1917, one infected tooth was extracted. From that time on he had no further trouble. In fact in June, 1917, he entered the United States Army and came through with flying colors.

Case 2. A woman, forty-four years of age, suffered from neuritis, headaches, rheumatism and infected teeth. She lost eight weeks from work in the summer of 1916. In June four infected teeth were extracted and she has had no trouble since.

Case 3. A man, fifty-two years of age,

*AMERICAN JOURNAL OF PUBLIC HEALTH, Vol. xi, No. 8, p. 740, August, 1921.

suffered attacks of pain like gall stones or gall bladder inflammation. In October, 1917, twenty-one infected teeth were extracted and since then he has had no return of the attacks.

Case 4. A woman, twenty-nine years of age, suffered from headaches, neuralgia for years, colds, fatigue, poor appetite, insomnia, loss of weight and infected teeth. She spent one year at the Company's sanatorium and made slow improvement. In January, 1917, seventeen teeth were extracted and antrum curetted. From that time she gained rapidly in health and is now an unusually healthy young woman.

Case 5. A woman, forty-seven years old, suffered from neuritis, palsy, tuberculosis and infected teeth. During 1916 she lost forty-one weeks from work. In March, 1917, she had seven teeth extracted. Since then the attacks of neuritis have been relieved.

Case 6. A man, fifty-eight years of age, suffered from lumbago, rheumatism and bad teeth. In 1916 he lost twelve weeks from work. In June, 1916, he had pyorrhea treatment and the root canals of devital teeth were filled. All the conditions are better.

Case 7. A man aged forty-one suffered from neuritis, grippe, loss of appetite and bad teeth. He lost five weeks from work in 1917 and one week in 1919. In September, 1917, the infected teeth and roots were extracted and all symptoms of neuritis disappeared and his appetite improved.

Case 8. A young woman suffered from blurring of vision of her left eye. No cause was found in the eye itself. Two badly decayed teeth and two infected teeth were extracted during November, 1918. Two granulomas found and both buccal roots opened directly into the antrum. By January 8, 1919, the trouble had all cleared up.

Case 9. A man of fifty years of age suffered from neuritis for three or four years. He was never free from pain. In February, 1919, two infected teeth were extracted and after three weeks had lapsed all pain from neuritis had ceased.

Case 10. A man of forty years of age had eleven infected teeth. From 1910 he had suffered from a general run-down condition and considerable abnormality of the heart. In April, 1918, he had the infection removed and from that time has enjoyed perfect health.

Some other interesting figures secured in connection with X-ray work are the following:

One thousand charts of cases where there were no teeth with non-vital pulps were picked out at random, no attention being paid to the medical records. The same number were picked out among those who did have one or more teeth with non-vital pulps and which showed radiographic indication of a changed condition about root ends. While the number is too small to deduce any dogmatic conclusions, the increase of systemic disturbances is sufficiently large to indicate that dental conditions are important factors to be considered in all health work.

There is one symptom that has not been recorded, and which should be recorded in all future figures of this nature. We find that while some employees may suffer from headache, and others not, fatigue is almost always present in every case.

	Patients without Dental Infection	Patients with Dental Infection	Shows % Increase
Neuralgia	3.8	8.3	18.4
Headache	1.9	3.2	68.4
Nervousness	1.7	4.5	64.7
Colds and nasal fossa	19.8	23.6	19.2
Furuncles	2.4	4.5	87.5
Abscess and skin trouble	2.6	4.5	73.1

In conclusion permit me to say that in my opinion no welfare work for industrial employees is complete nor can it be fully efficient which does not include regular and periodical prophylactic dental treatment, and I base my opinion upon the reasons and figures given in this paper.

DIPHTHERIA CONTROL

B. E. Roberts, M. D.

Epidemiologist, State Department of Health, Albany, New York; formerly Health Officer, Waterbury, Connecticut

Read before the Public Health Administration Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 15, 1921

WATERBURY is an industrial city of approximately 100,000 population, a large proportion of which is foreign-born, or of foreign parentage.

Previous to 1920 Waterbury had the unfortunate distinction of having the highest average death-rate from diphtheria of the large cities of Connecticut.

TABLE I

Mortality Rates from Diphtheria and Croup, per 100,000 Population, for the Ten-year Period 1910-1919. Compiled from Reports of the State Department of Health.

	Bridgeport	Hartford	New Haven	Waterbury
Average	22.7	24.3	15.7	27.3
Highest	34.5	41.6	23.5	43.5
Lowest	14.0	12.2	9.3	15.6

An examination of Table I shows that Waterbury not only had the highest average rate, but also did not reach a lower rate than 15.6 during the ten-year period.

In the middle of the summer of 1920 certain important changes were made in the organization of the Department of Public Health. A full-time health officer and two full-time bacteriologists, all non-political appointments, were substituted for the two part-time local physicians previously employed in these capacities on a political basis.

It was found that in spite of the high diphtheria mortality no efforts had been made to locate carriers, and that the release of cases had been left to the judgment of the patient's physician, who often took no cultures even from the patient, and practically never from other members of the household.

The important changes in the organization of the Department of Public Health were completed on August 1, 1920. One of the first steps after this was to present the diphtheria situation at a meeting of the local medical society, laying especial stress on the need of giving antitoxin immediately in suspicious cases, without waiting for the result of a culture, and of reporting such cases at once by telephone. The physicians have, on the whole, coöperated admirably. Their coöperation is greatly facilitated by the fact that a supply of antitoxin is available for them at all times, day or night, in the laboratory or in the police station. The antitoxin is obtained free from the State Department of Health and is furnished free to the physician.

The Department nurses were instructed in the technique of taking both nose and throat cultures. They were directed to take cultures from all members of the household as soon as possible after a case is reported. The patient and all carriers found are isolated in the same manner. Before release two successive negative cultures, taken at least twenty-four hours apart, are obtained from the patients and the carriers. Negative cultures are also obtained from the other members of the household before release. At least two negative cultures are therefore obtained from every member of the household. We have found practically the same number of carriers as cases.

The Department school nurses have taken special precautions to secure cultures from school children with suspicious throats. Where diphtheria has occurred within two weeks in different households having children who attend the same school, cultures have

been taken from all the children in the grades affected.

It is perhaps well to mention at this point that for the year 1921 the appropriations for public-health work were increased approximately 50 per cent, and the number of nurses was increased from seven to fourteen. Another point of interest is that no isolation hospital was used in controlling the disease. All cases were isolated in the home with the exception of a very few where the diagnosis was first made in one of the local hospitals.

For the year ending July 31, 1921, the diphtheria mortality rates were as follows:

TABLE II

Bridgeport	Hartford	New Haven	Waterbury
20.3	19.0	9.7	5.3

A glance at the tables given shows that the mortality rate from diphtheria in Waterbury reached a very low point for the year when intensive methods were first used for the control of the disease. The rate was just about one-third of the lowest rate during the previous ten years, and about one-half of the lowest rate in the three other large cities of the state. In other words, of forty-four comparable rates in eleven years for the four largest cities of Connecticut, this one rate for Waterbury was by far the lowest.

While it is a well recognized fact that we should not jump at conclusions from short-time variations in mortality rates, the remarkable drop which has occurred for Waterbury, coincident with a change in methods of control, seems sufficiently significant to merit attention. A caution is indicated for those public-health workers who, in their zeal for carrying on toxin-antitoxin immunization, may neglect to use their utmost efforts to control the disease by the discovery and isolation of cases and carriers. To reach our goal of complete eradication of diphtheria, universal immunization of infants and preschool children, as well as school children, will probably be necessary. Until we are able to do this, let us not forget the much more simple and easily adopted methods of controlling those who may spread the infection.

□

Isolation, Its Value and Limitations.—During the past thirty or forty years the results of the attempts at isolation (meaning the cutting of communication between the sick and the well) have been disappointing. It is true that, with our greatly increased means of communication, contagious disease would probably have increased vastly, and that we owe much to isolation in that the incidence of these diseases has remained nearly stationary. It is possible, too, that isolation has decreased the virulence of some diseases. Meanwhile, though, smallpox is nearly as prevalent as diphtheria.

Probably no health department has money enough to do all that needs to be done to control communicable diseases. It is necessary, therefore, to decide as to what shall be left undone, and to concentrate efforts where they will do the most good. Chicken pox, German measles and mumps can well be neglected, since they are so negligible as a cause of death. It is unwise to spend much money for the isolation of such diseases as influenza, pneumonia and whooping cough, since there is no evidence that isolation can in the least control them.

In those cases where isolation is an effective means of preventing disease, efforts should be directed toward (1) a more vigorous search for foci of infection, (2) a better supervision of cases and contacts, and (3) securing better coöperation by making restrictive measures as lenient and as effective as possible.

The most effective isolation is the hospital; the most effective means of securing home isolation is by the daily visit of a nurse. What is needed is not more rigorous isolation but the isolation of more persons.—C. V. Chapin, *The Public Health Journal* (Toronto), January, 1922.

EDITORIAL SECTION

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A HEALTH PUBLICITY PROJECT

In this issue are published symposia on "Motion Pictures" and "How to Further Progress in Health Education and Publicity," which contain the main points of the discussions on these topics in the sessions of the provisional Health Education and Publicity Section at the Fiftieth Annual Meeting.

This material is admittedly very informal and sketchy, more in the nature of suggestion than of a carefully worked out program. It contains ideas which can be adopted and utilized to advantage, however, by many health workers whose special task it is to bring to the favorable attention of the general public by the printed word, lectures, graphic media, the motion picture, or otherwise, the message of public health and preventive medicine in any of its myriad forms.

Specifically, the Section had before it for consideration the proposal made by Mr. Marcus (in Session II). In order that this proposal may not be lost in the shuffle following the meeting, we are taking this opportunity to place it before the Association at large in order that health officials, municipal and state, may coöperate in following out its suggestions. The proposal contemplates:

1. That officials should choose one particular audience or group in their communities to whom to "sell" public health. This group may be the schoolteachers, physicians and nurses, labor unions, mothers and housewives—any group of like interests. The business men's group was used for illustration, or narrowing it still further, the Rotary Clubs.

2. That a program of publicity to reach this group should be laid out for a definite period—say six months or one year—and that an endeavor should be made to state the message in as many different and as effective forms as can be adapted to the audience in question.

3. That at the end of this period the officials check up their work to see how far short it has fallen of its maximum possibilities; further that records of the work, including copies of all publicity material used, be sent for filing and further research and evaluation to some central headquarters.

This program is simple, even elementary. It does not attempt to take up the many complex questions which will arise, such, for instance, as the application of psychological principles to the preparation of publicity material for a given group. It is designed simply to make a start on developing methods and standards in a field which is as yet almost virgin soil. The JOURNAL believes it worth the while of health workers to coöperate on this project, and offers to receive material or plans for transmission to such clearing-house as may later be decided upon by the Health Education Section.

THE STATUS QUO IN THE NARCOTIC SITUATION

With federal and state legislatures in constant turmoil over proposals for the control of narcotic drug addiction, with scientific and medical opinion divided in clamant majority and minority groups over the "disease-vs.-habit" issue, with administrative bodies, both professional and lay, including state and municipal health departments, federal bureaus, and special commissions, at loggerheads,—all over a question which has in it apparently more power to call forth violent emotional reactions than any other scientific subject,—he would indeed be a bold man who would venture any final or dogmatic judgment on this vexed situation. Speaking therapeutically, a prescription of more light and less heat is emphatically indicated.

The American Public Health Association as a whole has expressed itself definitely in favor of such a policy in adopting the Report of the Committee on Narcotic Drug Addiction presented at the Fiftieth Annual Meeting (JOURNAL, December, 1921, pp. 1066ff). In so doing it has taken a fundamental stand to which all lovers of the truth can rally, for it should be unthinkable that a moot scientific question should be decided by a professional body without exhaustive and critical investigation. If sound administrative measures must wait upon such research, it is better that they should wait than that we should not have the research. Practically, both must proceed simultaneously, with the proviso that the one does not outrun the warrant of the other.

The point of view of the Committee was further supported in a resolution sponsored by Dr. Peter H. Bryce, which, for lack of time, was not presented to the Association, but was submitted to the Resolutions Committee and approved by that Committee and the Governing Council:

WHEREAS, present federal legislation and rules and regulations founded thereon are based on views of a group of men who hold that narcotic drug addiction, in the absence of chronic painful or incurable condition, is not a true disease but rather a vicious appetite or morbid desire; and

WHEREAS, there is another group at least equally numerous and of unquestioned integrity and ability who hold that there is an abundance of medical and other scientific evidence pointing to the conclusion that narcotic drug addiction is in itself a true pathological condition demanding in every instance individual study and care in its handling; and

WHEREAS, legislative acts and other restrictive measures based on either set of views must fail if the opposing views be the correct ones and must also inevitably cause an immense amount of needless suffering and still further extension of illicit traffic; and

WHEREAS, both of these groups, as well as many other groups and individuals, realize the vital importance of finding the proper solution of the problem of narcotic drug addiction; therefore be it

RESOLVED, that it is the sense of this Association that there should be a complete and impartial investigation of the entire subject of narcotic drug addiction and its control.

A Congressional investigation of the entire narcotic question, including both the medical phases and the operation of the Harrison Law and state laws, is a possibility if H. Res. 258, introduced in January by Representative Lester D. Volk of New York, is favorably acted upon. Though there is usually some political animus in investigations of this nature, exception can scarcely be taken to the main recommendation of the resolution, which calls for a select committee of fifteen, to contain all the physicians in the House, and to have access to all known data on the question.

The Committee on Drug Addictions of the Bureau of Social Hygiene is meanwhile continuing its independent investigation. Out of all these inquiries it would seem that some authentic and constructive findings should come. One word to the wise in all these groups may not be out of place in this JOURNAL. Liaison between all the investigations should most certainly be maintained, the resources of each should be at the disposal of the others, and active coöperation should be encouraged, so far as it is consistent with a policy of "no entanglements" that would hamper the scientific impartiality of the results.

LOOKING TOWARD THE CLEVELAND MEETING

Members of the Association who wish to be on the program for the Fifty-first Annual Meeting at Cleveland, October 16-19, would do well to give a thought to planning at this date. Get in touch with the program chairman of your section. (He is indicated with an asterisk in the list of officers on advertising page iii of each issue of the JOURNAL.) A meeting of the Central Program Committee was held in Washington March 15, at which general rules governing the program were adopted. Your program chairman can give you more exact particulars as to requirements.

Papers must be submitted by July 1 in order to be guaranteed consideration by the Program Committee. Abstracts or outlines of about 200 words should accompany all papers.

Chairmen of all committees should communicate with their committeemen at once and arrange for the consideration of their reports.

More complete announcements will be made in later issues of the JOURNAL.

ASSOCIATION NEWS

LIST OF NEW MEMBERS

Proposed for Election to the A. P. H. A. February 1 to February 28, inclusive.
Names of Sponsors are set in **Bold Face Type.**
Names of New Members are set in Light Face Type.

CALIFORNIA

William C. Hassler, M. D., San Francisco, Calif.
John E. Snodgrass, M. D., 1101 Flood Building, San Francisco, Calif., Full-time public-health worker.

MISSOURI

Thomas Parran, Jr., M. D., Jefferson City, Mo.
Ernest E. Huber, M. D., 309 So. Spanish St., Cape Girardeau, Mo.

NEW MEXICO

Mr. Harold F. Gray, Santa Fe, New Mexico.
O. C. West, M. D., City Hall, Albuquerque, New Mexico. Full-time County Health Officer.

NEW YORK

Prof. C.-E. A. Winslow, New Haven, Conn.
Mrs. Mary W. Coutant, Barnard College, Columbia University, New York, N. Y., Instructor in Botany, Barnard College.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 10th of each month for publication on the 20th. Mail to New York office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in New York City. In replying give age, professional training, salary requirements, previous positions held and three or more references.

United States Civil Service Examinations are announced for administrative assistants (chief clerks, matériel officer, clinical registrar and personnel officer). Examinations will be held on April 5, 1922. Applicants should apply for Form 1312 for full information. Examinations are also announced for reconstruction aide and reconstruction assistant (a. physiotherapy; b. occupational therapy). Applications will be received until further notice. Applicants should apply for Form 1312, stating the title of the examination desired.

Wanted: Chemist thoroughly experienced in analyzing food products, such as cider vinegar, prepared mustard, vanilla extract, spices, etc. State full particulars first letter, experience, age, married or single, salary expected to start. Address FOOD LABORATORY, care of this JOURNAL, New York address.

Wanted: Competent physician to take position as full-time county health officer in Middle Western state. Salary for first year, $3,000.00 and expenses. Address P. T. 476, care of this JOURNAL, New York address.

Wanted: Assistant bacteriologist who has had experience in municipal or state health laboratories. Skilled technician also considered. State education, training, experience and minimum salary in first letter. Address S. F. T. 480, care of this JOURNAL, New York address.

POSITIONS WANTED

Positions wanted announcements will be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 10th of the month.

Wanted: Position with state or municipal health department. Seven years of varied public-health experience, including government, state, and municipal connections in Europe, South America, Southern and Middle Western States. Organizing and administrative ability. Particularly interested in child hygiene. Three years in present position at salary of $3,000. Complete data promptly submitted. Address B. R. 203, care this JOURNAL, New York address.

Wanted: Position by bacteriologist in commercial, public-health, or research laboratory. University graduate. Experience in state, army and clinical laboratories. Desires position with good opportunity. Address K. R. 204, care of this JOURNAL, New York address.

BOOKS AND REPORTS REVIEWED

Epidemiology and Public Health. *Vol. I. Respiratory Infections. A Text and Reference Book for Physicians, Medical Students and Health Workers in Three Volumes. Victor C. Vaughan, M.D., LL.D., Ann Arbor, Michigan; assisted by Henry F. Vaughan, M.S., Dr. P. H., Detroit, Michigan; and George T. Palmer, M.S., Dr. P. H., Detroit, Michigan. C. V. Mosby Company, St. Louis,* 1922, *pp.* 688. *Price,* $9.00 *per volume.*

Our anticipations have been realized. At last we have a modern and monumental work on epidemiology. Vaughan has placed his great storehouse of knowledge and experience in sanitation and hygiene in the public archives. With characteristic courage, he has attacked the most difficult group of diseases—the respiratory infections—in the first volume, which has just appeared from the press.

Epidemiology is variously conceived by epidemiologists and is treated from different angles by students of the subject. Vaughan defines epidemiology as "the science of epidemic diseases, and these may appear in a given community at any time, singly or by the hundreds." From this point of view, epidemiology deals as much with a single case of infection as with a pandemic. This is justified by the consideration that "every case of infectious disease should be regarded as a possible source of an epidemic." The epidemiologist must trace the etiologic agent from the sick man through its often long and tortuous course to the one who becomes infected. The field of epidemiology has therefore broadened until it includes everything that pertains to epidemic disease. The epidemiologist must know etiology, symptomatology and pathology. Heretofore, works on epidemiology have dealt mainly with the history of past epidemics. We must still study the natural history of disease, because from this source we uncover information of the greatest value. Vaughan very properly gives the historic background to each one of the diseases discussed, always, however, with an effort to make proper application of the historic facts.

Vaughan's great and unique experience is detailed in the preface, where his varied services in civil and military life and his contributions to science are casually mentioned. His vivid account of his youthful impressions in the country shows what a revolution in the control of disease has taken place during the course of a single lifetime. In this conquest Vaughan has taken a distinguished part over a period of forty busy years. Probably no one else has ever had such a background for a work on epidemiology. Vaughan's personal experiences are reflected in almost every page of the book. The wonderful changes that have taken place during the span of his own observations is indicated by the measures taken by our military authorities at Santiago during the Spanish-American War. Thus, Vaughan sems contrite when he naively remarks: "What would you think of an epidemiologist who would burn a village for the purpose of ending yellow fever?" A sense of humor is indicated in the reflection that probably many infected mosquitoes lost their lives in that conflagration.

We regard the present work as Vaughan's *chef d'oeuvre,* although in saying this we are not unmindful of his fundamental contributions to the science of hygiene and the art of sanitation. The style is masterful, technical terms are avoided, the preface reads like a romance, and the introduction deserves reprinting and broadcasting. The felicity of expression and clearness of diction adds much to the charm of the work. While Vaughan glories in the conquests of preventive medicine, he cautiously warns that, "We have not passed the age of pestilence." There has been no armistice signed between man and disease. As an instance, he cites the recent appalling and destructive epidemic of influenza.

Originality is shown in the opening chapter which deals with the "Albuminal Diseases," a new term coined by Vaughan, whose contributions to the subject entitle him to name this conception. The body of the book before us is taken up with separate discussions of the prevalent respiratory infections: the pneumonias, measles, smallpox, diphtheria, scarlet fever, mumps, whooping cough, influenza, tuberculosis, leprosy, cerebrospinal meningitis, poliomyelitis and glanders. One might question including leprosy in the respiratory infections, especially as Vaughan states that there is reason for the belief that the bacillus

finds its entrance through wounds on the surface. Any classification of communicable infections cannot be final or satisfactory on account of our incomplete knowledge of many diseases, and a more or less arbitrary classification is therefore justified. We would also like to have more concerning "Weather and Disease," which is discussed in Chapter XX. Perhaps in a subsequent volume, climatology will again be taken up from different standpoints. Such criticisms are captious and do not detract from the book, which is a masterpiece.

The publishers have done their part well. The paper, print and illustrations are excellent. The usefulness of the volume would be greatly helped by a more extended index.

M. J. Rosenau, M. D.

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Sewerage and Sewage Disposal, a Text-Book. *Metcalf and Eddy. McGraw-Hill Book Company, New York, 1922. Pp. 589. Price, $5.00.*

Sewerage and Sewage Treatment. *Professor Harold E. Babbitt, University of Illinois. John Wiley & Sons, Inc., New York, 1922. Pp. 531. Price, $5.00.*

The appearance of two new text-books on the subjects of sewerage and sewage disposal deserves more than passing notice. Metcalf and Eddy's book is virtually an abridgement of their three-volume treatise on *American Sewerage Practice* which was published in 1914, 1915 and 1916. Those familiar with the larger work will feel at home with the new volume. Professor Babbitt's book is written by an experienced teacher and has more of the earmarks of a college text-book, with numbered paragraphs and with the materials arranged especially for instructional purposes. The reviewer has been interested in making a comparative study of these two books.

In the first place, it may be said that both of them are decidedly better than any other text-books on this subject now available. Metcalf and Eddy's book seems to be better adapted to advanced students and graduate courses, while Professor Babbitt's book has some advantages for the teaching of the subject in a more elementary way to undergraduates. It covers several subjects not taken up by Metcalf and Eddy, such as pumping, contracts and specifications, the design of the sewer ring, sewer maintenance, and government control with respect to disposal by dilution. The number of pages devoted directly to the subject of sewerage is about the same in the two books.

Metcalf and Eddy's book is especially strong on the subject of sewage disposal, the space devoted to this subject being nearly twice as great as that in Professor Babbitt's book. Among the subjects discussed in Metcalf and Eddy's book but omitted from Professor Babbitt's are: methods of sampling sewage; details of temperature and currents in the disposal of sewage by dilution; certain sludge removal devices; foreign experiences in sewage irrigation; and cost keeping. Professor Babbitt describes such experimental methods as the Mills acid process and electrolytic devices. The price of the two books is the same.

In connection with the hydraulics of sewers, Metcalf and Eddy give numerous inserted folded diagrams, whereas Professor Babbitt uses alignment diagrams. The preference between the two is perhaps a matter of personal choice. The reviewer prefers the diagrams but on the other hand realizes the inconvenience of the folded sheets. Attention should be called to the exceptionally complete index in Metcalf and Eddy's book.

In comparing these new text-books with those published more than ten years ago, it is interesting to notice the much greater space given to the subject of sewage treatment, a fact which shows the progress of the art.

George C. Whipple.

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As attention has been focussed on problems of public health by many circumstances during the past decade, the need of starting any program of health betterment with the young has been more and more clearly recognized. Searching for the causes of adult unfitness, we have discovered malnutrition of children. In 1911, malnutrition in the New York City schools was reported as involving 2.5 per cent of the children examined; in 1920, a report of 17.7 per cent bears witness to closer scrutiny of the children.

The Bureau of Educational Experiments has been a pioneer in studying systematically the attack upon the problem of malnutrition in a large public school, and has now summarized its work at Public School 64, Manhattan, during the years 1917-1920, in a volume which bears the stamp of thoroughness and sincerity. To one who has

lived through similar pioneer experiments in this new sort of educational work for children, the book presents a fascinating mirror of difficulties met and overcome in the organization and conduct of nutrition classes; of unfolding knowledge of the nature of the problem, resulting in the development of improved methods of procedure. At every stage careful statistical analyses aim to reveal the true achievements and evaluate them correctly. As a result of this experiment, the need of greater knowledge at many points in this field is stressed, and a program for research is outlined, involving standards of growth, causal factors of underweightness and their relationship to the response to be expected from the individual child, and the connections between malnutrition and mental defectiveness.

Equally interesting are the suggestions for an educational program. One is cheered by the recognition that "so-called normal children and children approximating currently accepted norms may benefit by the procedure [nutrition education] in proportion to their superior condition." One also appreciates the justice of the statements that "evaluation of success and failure for the child must be measured by his coöperation and by individual gains in fitness rather than by his comparative gain in relation to that of his fellows," and that "the child must be held responsible only for his coöperation in such activities as his environment affords"; and subscribes heartily to the statement that "the success of the school program of health education is dependent on a serious program of education in the community."

Analysis of the health program makes clear that there is a corrective and a preventive side—the former originating within the province of the physician, the latter essentially a teacher's task. It is gratifying to see the appreciation of educational skill as an essential in this program, and one regrets that the nutritional side of the experiment receives less emphasis. The whole program would have been enriched by the contributions of a professional worker in this field. This failure to appreciate one of the most important sources of strength in a nutrition program seems to the writer the most serious flaw in this very excellent work.

MARY SWARTZ ROSE, Ph.D.

Health Education and the Nutrition Class. *Jean Lee Hunt, Buford J. Johnson, Ph.D., and Edith M. Lincoln, M.D. New York. E. P. Dutton & Co., 1921. Pp. 281. Price, $3.50.*

✣

Diathermy; Its Production and Uses In Medicine and Surgery. *Elkin P. Cumberbatch, M. A., B. M. (Oxon) M. R. C. P. Medical Officer in Charge, Electrical Department, St. Bartholomew's Hospital, etc. Vice-President, Section of Electrotherapeutics, Royal Society of Medicine. St. Louis. C. V. Mosby Co., 1921. Pp. 195. Cloth, price, $3.50.*

This book is indeed a guide to those who desire to learn the principles and practice of a method of treatment which has proved its value in medicine and surgery.

Diathermy, the actual generation of heat in the body, due to the resistance of the body to the passage of an electric current, is a procedure which should interest not only the surgeon, since this method is now generally utilized in the treatment of malignancy, but also the internist, because of its acknowledged effect on metabolism.

This book by Elkin P. Cumberbatch is a clear and interesting exposition of the subject. The technical description of the high frequency currents, their method of production, and the construction of the diathermy machine is simple, clear and concise. The methods of application and the use of the accessory apparatus are gone into in detail. The application of deep heating to medical diseases, to such conditions as deficient physiological activity, sciatic and brachial neuritis, arteriosclerosis, paralysis agitans, hypertension, etc., is given in a sane and scientific manner. The use of endothermy by dessication and coagulation in the treatment of surgical conditions is fully described, as are also the varieties of electrodes used, the method of applying the electrodes and the manner of determining when the result has been achieved.

The large experience of the author permits him to speak with authority on the many mooted questions regarding the use of this method. The book is written in simple, clear and understandable language and can be thoroughly recommended to those interested in this electrotherapeutic method.

I. SETH HIRSCH, M. D.

PUBLIC HEALTH NOTES

Abstracts by D. Greene, M. D., James A. Tobey and Homer N. Calver.

Child Health in Czecho-Slovakia.—A report has just been received of the work of the child health centers in Czecho-Slovakia. These health centers have been established by the American Red Cross in coöperation with the Ministry of Health, the Ministry of Social Welfare, and voluntary organizations interested in the health of children. Prof. Selskar M. Gunn, formerly editor of the Journal, is technical advisor to the ministry. By the end of December, 1921, twenty-one child health centers had been established in various provinces of the Republic. A total of 21,822 children were registered and examined in these centers during the last six months' period of last year. For the same period there were 46,224 visits of these children to the various health centers. Nearly all of the cases are medical cases, as only 6,900 are reported without symptoms, and 3,353 are additionally reported as "social cases." These health centers are operated jointly by native and foreign personnel. The work is developed with the idea of eventually turning over the operation of them to the Czecho-Slovakian officials and voluntary agencies, utilizing the local doctors for carrying on the work. (*H. N. C.*)

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School Medical Service in England.—The annual report of the chief medical officer shows the extent to which the school medical service has grown in a few years. When the school medical service was started three disadvantages were anticipated: that it would pauperize the parent and destroy the sense of parental responsibility, that it would impose an unremunerative burden on the ratepayer and that it would have a detrimental effect on the work of the private physician. According to the report none of these has been realized. Parental responsibility has been stimulated, the investment is yielding a high interest, and medical treatment has been so safeguarded as to secure the support of the profession. The school medical service is not duplicating but supplementing and enhancing the work of the private physician. An important indirect effect of the service is that it has taught the educationist that children must be handled as individuals and not in bulk. A growing interest of teachers and parents in the health of children is evident.—London Letter, *Jour. Amer. Med. Assoc.,* Feb. 4, 1922, 361. (*D. G.*)

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Influence of Weather Conditions on Infant Morbidity.—The author reports the results of an investigation into the sickness occurrence among infants in the cities of York and Homestead, Pa., with particular reference to the relations of weather conditions to infantile diarrhea. The findings in York for the months July to December are summarized in the following table:

	Total Cases	Sick Cases No.	Per cent
Breast-fed (throughout period of observation)...	346	7	2.0
Breast-fed and artificially fed throughout period of observation)	74	..	..
Breast-fed (method of feeding changed during period of observation)	365	26	7.1
Artificially fed (throughout period of observation.....	307	42	13.7
Total 1,092		75	6.9

The author makes the interesting suggestion that it would seem entirely feasible to develop this line of inquiry in the direction of applied meteorology to the point of forecasting weather conditions favorable to an epidemic outbreak of infantile diarrhea.—F. L. Hoffman, *N. Y. Medical Journal,* Feb. 1, 1922, 145. (*D. G.*)

✠

The Wassermann Reaction in Young Children.—A group of Jewish institutional children varying in age from a few days to 6 years in one of the large child-caring institutions in New York were tested for syphilis. Many had a family history or pathological conditions which would warrant a suspicion of syphilis. Eight hundred and thirty Wassermann tests on 472 children were performed by the laboratories of the Department of Health of New York City as well as that of the State. Without exception they proved to be negative. Three hundred and ninety-nine

luetin tests were made on 350 of these children—321 reported negatively, 3 positively and 26 were doubtful. The Wassermann tests on all children showing doubtful reactions were repeatedly negative. The 3 children showing positive luetin reactions showed at no time any clinical evidence of lues, and gave negative Wassermann reactions. Among the children tested 22.4 per cent gave a history of insanity in one or both parents, 10.8 per cent were illegitimate, 6.5 per cent were mentally backward, 35.8 per cent showed various pathological conditions. In spite of these circumstances they all gave negative Wassermann reactions. Contrary to the general opinion regarding the incidence of syphilis in child-caring institutions, these results lead the authors to conclude that among the children of the Jewish poor of New York City syphilis is an exceedingly rare disease.—L. H. Barenberg and P. Rosenberg, *Archives of Pediatrics*, Jan., 1922, 93. (*D.G.*)

✠

B. Welchii a Possible Cause of Intestinal Disease.—The author describes a small epidemic of intestinal disease caused by the B. Welchii which was isolated from the public water supply. He notes that at the present time there is divided opinion among sanitary engineers and water plant operators regarding the pathogenicity or sanitary significance of this organism in public water supplies. He raises the point that the determination whether or not B. Welchii is harmful is a medical problem and until qualified experts having a medical training have thoroughly studied the effects of the organism on the human body we should be cautious about accepting as potable a water which contains the organisms in dangerous quantities.—H. B. Larner, *Jour. Amer. Med. Assoc.*, Jan. 28, 1922, 276. (*D.G.*)

✠

National Health Insurance in England.—Briefly commenting on the recent proposition to repeal the Health Insurance Act in England which has now been in force for nine years, the *Journal of American Medical Association* says editorially: "As we stated editorially some months ago, while compulsory health insurance may be a good thing in England, conditions in this country at this time are such that there is neither a need nor a desire for it. It is not worth while to take a nauseous medicine to cure a disease that does not exist." That opinion is now confirmed; for the unavoidable conclusion from the entire mass of evidence is that health insurance, even in England, after being in force for nearly ten years, is still an experiment, and a costly and by no means a universally satisfactory experiment at that. It has not bettered public-health conditions. The chief arguments of its proponents in this country—that its adoption would improve both public and individual health conditions—have not in any way been substantiated by the trial of the plan in England.—*Amer. Med. Assoc.*, Nov. 19, 1921, 1656. (*D.G.*)

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Referendum on Alcohol in the Practice of Medicine.—In order to secure the views of a representative portion of the medical profession on the use of alcohol in the practice of medicine, a questionnaire was sent by the American Medical Association to more than one-third (53,900) of the physicians of the United States. Replies were received from 31,115, or 58 per cent. This represents 21.5 per cent of the physicians of the country. A summary of the final report follows:

1. Physicians of the United States are almost equally divided on the question as to whether whisky is a necessary therapeutic agent in the practice of medicine; about 26 per cent consider beer necessary; about 22 per cent consider wine necessary.

2. More physicians of cities over 50,000 in population consider alcoholic beverages necessary than do those in smaller cities and in rural communities.

3. Physicians of the North Atlantic and South Atlantic States are more favorable to the therapeutic use of whisky than are those in the remainder of the country.

4. The large majority of physicians who consider whisky necessary believe it valuable in pneumonia, influenza and other acute infectious diseases.

5. A considerable proportion of those who consider whisky of value utilize it in the treatment of diseases incident to old age and general debility, in convalescence, diabetes, heart failure and shock.

6. Beer is used therapeutically chiefly in lactation, convalescence, old age, and for the treatment of debility, dyspepsia and anemia.

7. Wine is used chiefly for the same conditions as is beer, but also as a substitute for whisky.

8. About one-fourth of the physicians stated that they had seen instances of unnecessary suffering or death which they attributed to the enforcement of prohibition laws, including cases due to whisky of illicit manufacture or of poor quality.

9. Many physicians are against restriction in either the drugs prescribed, in the number of prescriptions or in the amount of drugs prescribed.

10. Only 2 per cent of the physicians replying believed that physicians should be permitted to write more than 100 prescriptions in three months.

11. Many physicians say that limitation of the number of prescriptions does not provide for epidemics, and encourages the use of the limit by many.

12. Many physicians say that limitation to a definite minimum quantity of alcoholic beverages over certain periods is a serious interference with treatment of conditions in which greater quantities are required.

13. A large majority of physicians believe that some regulation or restriction should be placed on the prescribing of alcoholic liquors.

14. A large number of physicians favor such regulations as are under the Harrison Narcotic Law.

15. The experience of physicians indicates that certain state laws are too stringent relative to the provision of pure alcohol for laboratory and surgical purposes.

16. Many physicians have not informed themselves as to their privileges under the present regulations relative to the securing of pure alcohol or of whisky for office use.

17. The lack of uniformity in state and federal laws complicates the formulation of methods for adequately solving the problem of the medicinal supply of alcoholic liquors.

18. Physicians through their practice have observed extensive violations of the present prohibition regulations in their communities.

19. The majority of physicians would welcome a change in prohibition regulations which would take from them the burden of distribution of alcoholic liquors.

20. Many physicians believe that the provision of whisky and alcohol for medicinal purposes by the government in sealed packages at a fixed price with control of prescriptions similar to that of the Harrison Narcotic Law will solve the problem of relation of physicians to the enforcement of prohibition.

An English View of Public Health Activities.—A writer in the *Journal of the Royal Sanitary Institute* divides public-health work into two classes: (1) sanitary engineering, (2) the work of the health department. In considering the latter, he states that according to a compilation of the expenditures of the Medical Officers of Health of County Boroughs in England during 1919-20, out of every £100 expended on health work (not including water supply, sewage disposal, scavenging, etc.) £26 was spent on work against infectious diseases, mostly hospital maintenance; £30 on anti-tuberculosis work; £13 on maternity and child welfare; £5 on venereal diseases; £9 school medical service; £2 on food control (though this figure does not include the cost of the abattoir in cases where this is controlled by a markets' committee); £15 on administration and work on general sanitation. The writer also assigns values to various branches of public-health work. A resume of these values is given in the Public Health Engineering Abstracts of the United States Public Health Service of February 25, 1922. (*J. A. T.*)

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What a Governor Thinks About Health.—"In the minds of the girls and boys of to-day lies the future of all public-health work," Governor J. B. A. Robertson of Oklahoma said at the banquet of health workers held as the closing event of the Fourth Annual Public Health Conference, October 12, 1921. "The older people will just have to die, for there is little chance of converting them to support the work, but the younger generations must be taught the principles of personal health. To-day, every school in Oklahoma is filled with literature sent out by the Health Department of the state. The subject of health is now the most popular theme in our schools. The work of the Association has just begun and its future is so great that I cannot predict the immensity of it."—*Oklahoma Health Champion,* November, 1921. (*J. A. T.*)

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Scarlet Fever "Return" Cases.—To prevent "return" cases as far as possible at Ealing, great care is taken in dismissing scarlet fever patients from the isolation hospital, particular attention being paid to the nose, ear and submaxillary glands, enlargement of which seems to indicate active infection. Dr. Thos. Orr, M. O. H., reports that after dismissal from the hospital all cases are visited at their homes by

the health visitors at least twice during the first fortnight, and if there is any sign of the ears or nose being affected, further isolation is advised and further exclusion from school directed, repeated visits being made until the condition of the nose or ears is such as to warrant the patient being allowed freedom to mix with other children. It often happens that a patient on reaching home develops a nasal discharge, and the precautions indicated are desirable to prevent infection should the nasal secretions be still infective. During last year the health visitors made 113 first visits and 111 subsequent visits to scarlet fever convalescents after their return home.—*Medical Officer,* Jan. 7, 1922, 8. (*D. G.*)

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Window-Cleaning for Consumptives.—The question of finding a suitable occupation for tuberculosis patients is one which greatly occupies the minds of tuberculosis officers and care committees. Too often whatever work is found is only temporary in character, depending, perhaps, on the season of the year or upon the prevalence of some local industry. It is interesting to note that Dr. W. A. Daley, M. O. H. of Blackburn, refers in his annual report to the fact that for some years past the Charity Organization Society in that town has maintained a window cleaning department in which ex-sanatorium patients are employed. Such an occupation is eminently suited to the needs of the consumptive, being of the open-air type and unassociated with any undue muscular effort. Other authorities might well follow the lead of Blackburn in this respect.—*Medical Officer,* Dec. 3, 1921, 244. (*D. G.*)

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Vassar Undergraduates Plan to Take Up Public-Health Work.—A canvass of 581 students of Vassar who contemplate professional futures has indicated that only 14 of the number are planning to take up public-health work. Twelve expressed a preference for nursing, 36 for medicine, and 178 for social service. The largest number, 179, hope to go into literary work. Other preferences are business, 118; art, 96; teaching, 92; psychology, 73; dramatics, 57; music, 53; physical education, 52; science and mathematics, 39; agriculture, 35; household economics, 30; religious work, 19; library work, 17; architecture, 15; law, 11, and research work, 10.—*Better Times,* February, 1922. (*J. A. T.*)

Influenza in the United States.—Telegraphic reports to Surgeon General Cumming of the U. S. Public Health Service show that 8,768 cases of influenza were reported to the health officers of thirty states during the week ended February 4, 1922. Of these, 5,731 cases were reported in New York City. The population of these states is about 70,000,000, making 12.5 cases per 100,000 population. These figures are higher than corresponding figures for the previous week and also higher than those for the corresponding week of last year. During the corresponding week of 1920, more than 225,000 cases were reported by the state health officials of these states. During the week the number of reported cases of influenza increased somewhat over the greater part of the country, as is expected at this season of the year, but the increase was especially noticeable in New York state, New England and New Jersey. (*J. A. T.*)

✣

From Beer to Baking Science.—The Wahl-Henius Institute in Chicago, originally established to carry on scientific research work in connection with the brewing industry, has been purchased by the American Institute of Baking. The executive offices of the Institute have been moved from Minneapolis to the new headquarters.

Since experimental and research investigations in the brewing and baking industries are closely allied, the equipment of the Wahl-Henius Institute will serve admirably the purposes of the American Institute.—*Northwestern Miller,* October 26, 1921.

✣

Ozone in the St. Louis Schools.—After preliminary studies and tests made on a number of persons with ozone concentration many times that for ventilation, ozone machines have been installed in the air ducts of a number of the school buildings of St. Louis. The first machine was installed in the O'Fallon School in 1919. The effects on the comfort and health of teachers and pupils were so marked that in the summer of 1920 ozone machines were installed in thirteen old schools and put in the specifications of three new ones. In most instances the principals and teachers were not apprised of the change in the ventilation, in order that psychology might not figure in the results. The most beneficial results were noticeable in a few weeks. Teachers volunteered the information that pale and anemic

children had gained in weight and that the new ventilation relieved the fatigue of the day's work.

Hundreds of visitors have visited the schools where this ventilation has been installed. To those who are not fully convinced of the merits of ozone in ventilation, an invitation is extended to visit the schools of St. Louis and make such tests as may seem desirable where the facilities for such are so large.—*Jour. Am. Soc. of Heat.-Vent. Engineers,* January, 1922.

✣

Conference on the Education of Sanitarians.—A conference on the future of public health in the United States and the education of sanitarians was held in Washington in the American Red Cross Building on March 14 and 15, 1922, under the auspices of the United States Public Health Service. The conference members included presidents of universities; deans and directors of schools of public health, hygiene, and medicine; professors of public health and other educators; state and city health officers; representatives of voluntary organizations and of the government. The gathering was a most distinguished one, probably the most notable which has ever come together to discuss public health. About two hundred registrants and guests were in attendance.

While all the papers presented were extremely varied and of too great length even to abstract here, a number of important and salient points were brought out which are worthy of mention. All of the papers presented will be later issued in pamphlet form by the Public Health Service.

That public health is a very diverse and extensive subject seemed generally agreed. It is not a branch of medicine, but is closely allied and parallel to it. Present medical curricula would have to undergo marked changes in order to be adapted to the requirements of public-health training. Medical students are inclined to look with disfavor on sanitarians and medical faculties themselves need a broader conception of sanitary science.

The present need for sanitarians is not being met. The quality of the men who are taking up the subject must be raised. Their future must be made more attractive by better remuneration and more secure tenure of office. The public must likewise be educated to appreciate the importance of public health. While the education of future sanitarians is of paramount importance, that of those now employed must not be neglected.

Perhaps one of the keynote thoughts of the conference was that sanitarians must have the human element. The "general practitioner of public health" was emphasized as essential. Leadership and vision were expressed as qualities well worth development.

The committee on recommendations reported only one recommendation, namely, that the Surgeon General of the United States Public Health Service be empowered to appoint a committee of eight, this committee to enlarge itself to fifteen, and consisting of Dr. C. C. Bass, New Orleans; Dr. W. H. Howell, Baltimore; Dr. A. J. McLaughlin, Washington; Dr. E. O. Jordan, Chicago; Dr. M. J. Rosenau, Boston; Dr. R. L. Wilbur, Palo Alto, Cal.; Dr. Ennion Williams, Richmond, Va.; Dr. C.-E. A. Winslow, New Haven, Conn. The committee is to take up whatever questions it sees fit and whatever further action for future conferences may seem wise in order to continue the activities that this conference has started.

A vote of thanks was given to the Public Health Service in appreciation of its initiative in calling the meeting and for the admirable way in which it was conducted. The conference was a most successful one and the results of the brilliant discussions should have an important effect on the future of public health in this country.

✣

Community Aspects of the Tuberculosis Problem.—A series of three articles by Dr. Philip P. Jacobs has appeared in the *Public Health Nurse,* dealing with the community aspects of the tuberculosis problem under the titles "Finding the Cases," "Adequate Care," and "Adequate Control." The discussion is based on the principle that tuberculosis is a local, not a state or national problem, though its state and interstate aspects are recognized. Dr. Jacobs asserts that the efficiency of the public-health nurse may be measured to a certain extent by the number of tuberculosis cases that she discovers, giving the results of the Framingham experiment as proof of the assertion that only a small percentage of active

tuberculosis cases are reported in the average community.

The care of early, advanced, and discharged cases and suspects is discussed. The advice of an expert medical consultant is valuable and sanitorium care when it is possible.

Under "Adequate Control," Dr. Jacobs urges the prevention of infection by the segregation and supervision of every known focus of infection. Foci of infection fall into certain definite categories, viz., bovine, incipient, moderately advanced and far advanced human carriers.

The series of articles is invaluable to public-health nurses everywhere, particularly if they are working in localities where physicians are not yet awake to the opportunities of combating tuberculosis.

✠

A Significant Public Health Message.—"If we review the public-health work of the country during the past year, the prospects of the new year should encourage all of us who work in the field of preventive medicine and public health. Marked as the year was by a period of profound economic depression, social unrest and financial stringency, I think one thing upon which the public-health workers are to be congratulated is that in the face of drastic retrenchment in all other respects, public-health funds have suffered the least of all appropriations and outlays.

"This can mean but one thing—the dependence of national prosperity upon national health has ceased to be submerged in the public consciousness, and the necessity for adequate health protection is now a generally accepted fact—a fact backed by public opinion and which taxpayers are willing to finance."—Hugh S. Cummings, *The Nation's Health*, January 15, 1922.

✠

The Place of the Nutrition Worker in the Health Program.—The nutritional factor is a large and essential factor in the public-health program. It has not yet received the recognition, however, in practice, which its importance suggests. Its chief obstacle to overcome is ignorance, and its function is, therefore, largely educational. Education is a slow, difficult and expensive process, but it is, nevertheless, much swifter, much easier and much less expensive than is the process of readjusting economic conditions. The school, including the elementary school, the secondary school, the college and the university, is, or can be, the most important instrument for overcoming universal ignorance. The hospital and special institution is another potential, though not fully realized, educational force, but the important supplementary agencies of public and voluntary health organizations must not be overlooked as serious factors in this situation. The nutrition worker should be an element in every staff of teachers or of field workers, and our training schools must see to it that more adequate provision is made for field training of nutrition workers with this in view.—Bailey B. Burritt, general director, New York Association for Improving the Condition of the Poor, *Journal of Home Economics*, Vol. XIII, No. 12, p. 579, December, 1921.

✠

Health Education of Children.—A high standard of general health is to be secured permanently only through the training of children in personal hygiene. They are teachable in health matters as in everything else. Of course the real place for such teaching is the home, but it is astonishing how the home has failed in this matter as a whole. There are entirely too many children between the ages of 8 and 12 years drinking coffee, consuming quantities of sweets between meal times, so that no appetitie is left for plain nourishing foods, and who go to bed so late that it is hard to arouse them in the morning in time to get a hasty breakfast and hurry to school, with no time to think of matters of health such as daily bowel movement. This state of affairs is sure to affect their studies as well as their general health.

There are 20 per cent of the pupils of the United States who are below average weight for height, and a much larger percentage show physical defects which hamper growth.

Because as a whole the home has failed to teach health matters, the school is now doing a great deal to fill the tremendous need. In the past health teaching in the schools has been rather of a theoretical nature, and besides it has not been made interesting. To reach children the teaching should be of a positive nature rather than a negative, that is, not just to know what not to do, but to actually do things and report on action.

Competitions as to height and weight seem to reach more people with less cost and trouble than any other method, for this reaches the

parents. Weights are understandable and can be grasped by the simplest minds. In some schools scales are kept and weights taken at the beginning of the school year and monthly thereafter. Each child is anxious to maintain his standing and to make progress. Often the teacher asks for comments from the children as to how they gained or lost weight. This method calls forth the child's everlasting "why," and when he sees what irregularity does to him he is anxious not to have a loss again. Through the children's interest the coöperation of the parents is secured because of the competitive spirit.

The main thing is to have a teacher who is interested and interesting, one who appreciates the value of health and all that leads to that end.

In some cases it is necessary to form special nutrition classes where children are particularly below par. Here they are subjected to a full examination as to the cause, whether it is diet, careless health habits, or some existing disease, but in most cases it comes down to food and habits. Weekly visits are arranged so that progress may be reported.

The idea is to teach children to look upon health as a thing of joy, a source of happiness, an essential to success, and a real beginning has been made along these lines.—L. Emmett Holt, M. D., *International Journal of Public Health,* November-December, 1921.

✠

"The Jewels of Cornelia."—This is a health play in one scene. It has adapted the age old story of Cornelia's jewels to present day life.

Cornelia, a modern mother, displays greater interest in her valuable collection of jewels than in her two children. She buys a diamond lavaliere from a jeweler who comes to her house, because he assures her that it belonged to Cornelia of ancient Rome. While out of the room for a few moments, a robber enters and steals all her other gems. A vision comes to her in her anguish, and announces that she is that Cornelia of old Rome, one time owner of the diamond. She summons various jewels which she saw just outside of the door of Cornelia, the mother. They are Ruby, Emerald, Pearl, Opal, Topaz, Amethyst and Turquoise, each one of whom represents some phase of good health. "I am the warm glow of good health," says Ruby. "I am the flush in rosy cheeks, kissed by the sun and the wind."

Finally, two diamonds are shown to Cornelia. She perceives that they are her children. The robber, who says he is Bad Health, returns and once more tries to steal them from her. The policeman gets him, however, because he is Officer Knowledge. When the real policeman enters with the real thief and Cornelia and the phantom jewels have vanished, Cornelia, the mother, realizes that her children are, after all, the true jewels of her life. She puts away the other gems as only baubles and clasps her children to her heart.—"The Jewels of Cornelia," by James A. Tobey, *Journal of the Outdoor Life,* Feb., 1922.

✠

Annual Report Issued.—A pamphlet has recently been issued containing the annual report of the Mental Hygiene Committee of the State Charities Aid Association, and the annual report of the State Charities Aid Association to the State Hospital Commission. The Mental Hygiene Committee reports the establishment of four new clinics, and an increased attendance at state hospital clinics of 34 per cent over the previous year. All measures before the Legislature relating to mental disease and mental defect were studied and appropriate action taken. Two bills which were opposed were defeated in the Legislature. One of these proposed to amend the Insanity Law by providing for a trial by jury for the insane before commitment. The other would have changed the qualifications of the superintendents of the state hospitals and the medical officer of the State Hospital Commission by waiving the requirement for experience in an institution for the treatment of mental diseases.

The State Charities Association reports further overcrowding in the thirteen civil state hospitals, in spite of a large increase in the number of patients on parole. In emphasizing the necessity for more preventive work, it again urges the establishment of state psychopathic hospitals.

The Association supported the proposal for the establishment by the Federal Government and the state of New York jointly of a special military hospital for mentally disabled veterans.

✠

Newark Public Health Institute.—One of the most important of the series of institutes being held this year by the United States

Public Health Service is that to be held at Newark, New Jersey, April 10-15. Owing to the proximity of New York and other leading medical and health centers, the program is exceptionally attractive and contains among others, the following high authorities: Dr. C. V. Chapin on Communicable Diseases; Dr. Haven Emerson, on Administrative Problems; Dr. J. A. Fordyce on Syphilis and Dr. Hugh Young on Gonorrhea; M. N. Baker on Sewage; Dr. Simon Flexner on Meningitis; Dr. Hideyo Noguchi on Spirochetes; Dr. Michael Davis, Jr., on Health Centers; Dr. Abraham Zingher on Diphtheria; and Dr. W. C. White on Tuberculosis. The Annual Conference of State and Local Health Officials of New Jersey will be held in conjunction with the Institute, and a Women's Social Hygiene Conference will follow it. Dr. Charles V. Craster is acting chairman of the Institute, Dr. A. Clark Hunt, director, and Dr. J. C. Price, secretary of the State Board of Health.

✠

Motion Pictures as Used in Health Education.—There are three distinctly different kinds of instructional health motion pictures. One variety is what may be called the propaganda film. It is in part educational, but it is prepared for the general adult audience and not for pupils. Several such films have been prepared by the Red Cross and they have a distinct usefulness.

The second type of picture is the drama which presents with its plot and human interest, certain health information. These pictures are for the theatrical circuit and they have great possibilities for service. They are difficult to present, because if they contain too much health instruction the action is slowed up and the picture fails as an amusement feature. However, there are a few successful pictures of this type.

The third and most important type of health picture is the strictly educational film. This is the type of film which is rapidly being introduced into the public schools. The most important development in this field has been the organization of the Society for Visual Education which has undertaken the production of series of school films in history, economics, civics, geography, nature study and physics, as well as in health and sanitation. Through these films, health information is presented in a novel manner—so novel that the films are very popular. They are presented only through educational or health authorities, and a theatre itself cannot present them without the consent and coöperation of the health officer. Through utilizing this new educational force in presenting health information to both adults and children, much is being accomplished in stimulating a desire for healthful living and creating a vital health conscience. —C. E. Turner, *The Nation's Health,* January 15, 1922.

✠

The Organization of Research in the Federal Service.—The subject matter is handled under three general heads: (1) What is the function of research in the government service? (2) How can such research be best organized? (3) What is the relation of such research, but appropriates money for research of which the Food and Drug Act is an example?

(1) Congress appropriates practically no money for the purpose of carrying out fundamental research. It appropriates money almost exclusively for the solution of some specific practical problem, which, if solved, can be evaluated in dollars and cents. But the primary function of the Federal Government with reference to research is to carry on fundamental research whether it has immediate practical value or not. Government and university investigators are the people who should furnish new fundamental principles to be applied in industry.

(2) In view of the fact that the Federal Government does not carry on fundamental research, but appropriate money for research for immediate, practical, and specific purposes, it is a mistake to have in the government service a bureau, such as the Bureau of Chemistry, and other divisions which were organized by fundamental sciences. Organization of research in the government should be by commodities and by fields of work. Any bureau which has a practical problem set for it by Congress must be left free to employ any kind of scientists for the solution of the problem that may be necessary.

(3) The administration of laws which involve the control of commodities and require scientists in their enforcement, of which the Food and Drugs Act is a type, if they are not to be made odious must be enforced in those departments that are familiar with and doing constructive and coöperative work with the industry that produces these com-

modities. If that is not done, the administration of such laws would be non-constructive and they might become odious.—C. L. Alsberg, *Official Monthly Bulletin Interstate Cotton Seed Crushers' Association,* July, 1921.

✠

Archives of Occupational Therapy.—Occupational therapy, one of the most recent of medical specialties to gain a place for itself in the regime of the modern hospital and preventorium, now has its own technical and professional journal in the *Archives of Occupational Therapy,* the first issue of which was published in February. It is under the editorship of Dr. William Rush Dunton, Jr., of Sheppard and Enoch Pratt Hospital, Towson, Md., and is published bimonthly by the Williams and Wilkins Company, Baltimore, at $5.00 a year. Included in its board of associate editors and the list of contributors are many of the most distinguished authorities and specialists in the field, including Drs. Frederic Brush, R. Tait McKenzie, R. Tunstall Taylor, Jules Amar, H. A. Pattison, and Mrs. Eleanor Clarke Slagle. The leading article of the first issue is a scholarly treatment of "The Philosophy of Occupational Therapy," by Professor Adolf Meyer, of Johns Hopkins University. If the contents and mechanical excellence of the *Archives* maintain their initial standard, it cannot help but make a distinct place for itself among American scientific journals.

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Baking Technology.—The rapid advance of the American baking industry in scientific research in recent months has been largely due to the work of the American Institute of Baking, of which Dr. H. E. Barnard is director. The industry now has its own monthly journal, *Baking Technology,* edited by I. K. Russell, and published by the Institute at 1135 Fullerton Ave., Chicago. It publishes the official notices of the American Bakers Association, interprets for bakers the scientific investigations of the Institute laboratories, stressing insistently and continuously the necessity of the highest nutritional and sanitary standards. The first number, published in January, contains an article by Dr. S. C. Prescott of the Massachusetts Institute of Technology on "Bakery Sanitation," and gives prominence to a number of bread "score-cards," by means of which both the bakery and the loaf can be rated in comparison with the best ideals of the industry.

LEGISLATION—FEDERAL

(From bi-weekly reports of the National Health Council, Jan. 17-Feb. 15)

PROGRESS ON MATTERS PREVIOUSLY CONSIDERED

S. 2708. Medical and Hospital Supplies for Russian Relief.—This measure, after passing the Senate and the House, was signed by the President on January 19, 1922 and became a law. The bill as originally passed in the Senate provided for the transfer of all surplus medical and hospital supplies in the hands of the War Department to the American Committee for Russian Relief. It was amended in the House of Representatives by limiting the amount to be transferred to $4,000,000 in value. Authority for the transfer was conferred upon the President instead of the Secretary of War and the time in which the proposed transfer is to be made was limited to a period of four months. These amendments were agreed to by the Senate on January 17.

H. R. 9724. Appropriations for Treasury Department.—Passed the House on January 6, 1922, and the Senate on January 20, 1922, with a few amendments, then went to conference. Passed the Senate February 11. Included in the measure are appropriations for the U. S. Public Health Service, for repair work on four government hospitals, and for cost of maintenance of quarantine stations, all of which was outlined in National Health Council Statement No. 18 (A. J. P. H., March, 1922). Some minor amendments affecting public health were added in the Senate. Included was a clause providing that the U. S. Public Health Service should inspect aliens entering the country. Eleven thousand dollars was appropriated for the repair of the quarantine station on the Columbia River, Astoria, Oregon.

H. R. 8928. Government Salary Reclassification. Report in Senate. The Public Health Service Nurses.—The Lehlbach bill, which passed the House on December 15, 1921, (See A. J. P. H., February and March) was reported with amendments from the Committee on Civil Service of the Senate on February 3, 1922, and referred to the Committee on Appropriations. Several important amendments were made. As has been previously pointed out, it was deemed unsatisfactory to have included provisions concerning salaries in the Public Health Service. Accordingly, the commissioned

personnel of the Public Health Service has been exempted from the term "position" as used in the bill and so salaries of these officers will not be affected.

Another important amendment was to include nurses in the professional and scientific service. In the original bill nurses had been placed with housekeepers in the institutional service. In its report the Committee said, "Upon further study it has seemed entirely practicable that nurses, whose duties require them to pursue a professional or scientific training equivalent to that represented by graduation from a college or university of recognized standing, shall be included in the professional service, and that other nurses who are not required by their duties to have attained full professional standing shall be classified in the subprofessional service." The Senate also increased the compensation of all the six grades in the professional and scientific service. The annual increases are as follows: Grade 1, $180; Grade 2, $240; Grade 3, $300; Grade 4, $420; Grade 5, $540, and Grade 6, $600. The subprofessional service salaries were increased, but the inspectional service remains unchanged.

H. R. 9775. Reorganization of the Public Health Service. Recommendations of the Secretary of the Treasury.—Secretary of the Treasury A. W. Mellon has written to the House Committee on Interstate and Foreign Commerce, which has this bill before it, making a number of recommendations. He suggests that, instead of transferring 550 reserve officers to the regular corps that only 350 such officers be transferred. The reason given for this is because it is not now practicable to determine the number of officers which will be permanently required. The clause giving the Surgeon General the same pay as the Surgeon General of the Army is also recommended to be stricken out, in accordance with a suggestion from the Surgeon General of the Public Health Service. This bill is outlined in Statement No. 18, p. 2 (A. J. P. H., March). No corps of nurses, dietitians or reconstruction aids is provided in it.

H. R. 9490. Medical and Hospital Service for Coast and Geodetic Survey. Introduced by Representative Winslow, December 12, 1921.—Favorably reported to the House by the Committee on Interstate and Foreign Commerce, February 10, 1922.—By the terms of this bill (See A. J. P. H., February) as amended by the House Committee, the U. S. Public Health Service is directed at the discretion of the Secretary of the Treasury to furnish medical, surgical, and hospital service, including supplies, to the officers and seamen of the Coast and Geodetic Survey. When practicable, medical officers are to be designated to serve on the vessels of the Coast and Geodetic Survey.

NEW LEGISLATION

S. 3113. Reduction in the Number of Officers of the Army. Introduced by Senator Wadsworth, February 3, 1922, and prepared, according to his announcement in the Senate, by General Pershing, Chief of Staff of the Army. Referred to the Committee on Military Affairs.—The proposal in this bill to reduce the commissioned personnel of the army from 17,000 to 13,000 repeals all other laws and fixes a definite number of officers in the medical department of the army, as follows:

Medical Corps	1,053
Dental Corps	177
Veterinary Corps	144
Medical Administrative Corps	81
Total Officers, Medical Department	1,455

Although the measure stops promotions in other branches of the military establishment for a definite period of time, there is a clause which specifically states that promotions in the medical department shall continue without change. The bill, however, stops the appointments of new officers in the medical department until the number of officers has been reduced to the total prescribed.

H. R. 4. Pensions for Nurses of the Spanish-American War. Passed the House of Representatives February 1, 1922. Referred to the Committee on Pensions in the Senate, February 3, 1922.—Besides fixing pensions for widows and orphans of veterans, this bill provides that all women employed by the Surgeon General of the Army as nurses, under contract or otherwise, during the war with Spain, the Philippine insurrection, or the Chinese Boxer rebellion, rendering actual service, shall be entitled to a pension of $20 per month.

H. R. 9981. Appropriations for Executive and other Independent Bureaus of Government. Introduced by Representative Wood of Indiana, January 18, 1922. Favorably reported to the House by the Committee on Appropriations, January 18, 1922. Taken up for debate on January 19, 1922—Included in the appropriations of the independent bureaus, commissions, boards and officers of the government covered in this measure is the U. S. Veterans' Bureau. The items follow:

(a) Expenses of offices, sub-offices and all costs in their operation, $25,815,942.

(b) Compensation for death and disability for both the army and the navy, $160,000,000.

(c) Medical and hospital service, dispensary, nursing, after care, examinations, etc., $64,658,680.

(d) Vocational rehabilitation, $127,000,000.

One of the stipulations of the measure is that the director of the U. S. Veterans' Bureau shall report to Congress every two weeks the list of salaries over $2,000 in the Bureau. Another proviso would prevent the establishment of a vocational training school at any other army cantonment except Camp Sherman, Ohio.

Also in the bill is an appropriation of $2,641,940 for the Employees' Compensation Commission.

This bill passed the House January 30, 1922, and the Senate February 11, 1922, with the following changes relating to the U. S. Veterans' Bureau:

1. Complete expenses incidental to operation of the Bureau raised from $25,815,942 to $34,970,974.

2. Compensation for disabled sailors and soldiers decreased from $160,000,000 to $145,000,000, with stipulation that not exceeding $15,000,000 of any unexpended balance may be used for this purpose.

3. Vocational rehabilitation appropriation is increased from $127,000,000 to $146,409,188.80.

H. R. 10028. Concentration of Distilled Liquor in a Small Number of Warehouses. Introduced by Representative Green of Iowa, January 20, 1922. Favorably reported by the House by the Committee on Ways and Means, January 26, 1922.—This measure is of considerable interest to the medical profession of the country, as it is in line with some of the proposals made by physicians, who dispense liquor by prescription upon permits. These proposals have included the concentration of the distilled liquor supply of the country in a small number of places and its preparation in packages of a pint in size so that prescriptions can be readily filled. This measure, while not providing for small packages, does stipulate that the distilled spirits supply now deposited in 304 bonded warehouses in the United States be removed and concentrated in 20 warehouses from which it can be withdrawn for medicinal purposes.

H. R. 10075; S. 3120. Deportation of Aliens Convicted of Traffic in Drugs or Narcotics. Introduced by Representative McArthur, January 23, 1922. Referred to the Committee on Immigration and Naturalization. Introduced by Senator McNary, February 3, 1922. Referred to the Committee on Immigration.—This bill provides that any alien after entry in the United States, who shall be convicted of any offense against any federal, state, or municipal drug and narcotic law shall, after completing his sentence, be deported by the Secretary of Labor. The bill also prohibits the return of the deported offender to the United States.

H. R. 10031. Revision of Pensions of the Civil War. Introduced by Representative Brooks, January 20, 1922. Referred to the Committee on Invalid Pensions.—A section of this proposed act gives all army nurses, male or female, who served in the civil war, a pension at the rate of $50 per month.

S. 3078. To Provide for the Free Transmission Through the Mails of Certain Publications for the Blind.—Introduced by Mr. Frelinghuysen, January 25, 1922. Referred to Committee on Post Offices and Post Roads.

LEGISLATION—STATE

(From bi-weekly reports of the United States Public Health Service with the cooperation of the National Health Council, February, 1922. These abstracts are necessarily very brief. Persons interested in obtaining complete copies of bills are referred to the various secretaries of states.)

Kentucky

1. Pure Food, Drugs and Laboratories. S. 93. This bill prohibits and defines adul-

teration and misbranding of foods and drugs and requires the State Board of Health to examine samples, adopt standards of purity, and report violations to the Commonwealth's attorney or attorney of a local government for prosecution. The State Board of Health shall also inspect food production, and do laboratory examinations in connection with disease control.

2. Tuberculosis. (a) H. 131. This bill would allow cities and counties to issue bonds in order to provide tuberculosis hospitals.

(b) S. 137. This bill would make it unlawful for any tubercular person to teach in the public schools. A certificate showing freedom from this disease must be presented before taking examination as a teacher.

Maryland

1. State Bureau of Child Hygiene. H. 72. Adds a bureau of child hygiene to the five existing bureaus of the State Board of Health and outlines its duties.

Massachusetts

1. Dentists. H. 96, 97, 98. Dentists must register with city or town clerk of place of business. They may, after lawfully practicing for five years in another state, be registered without examination by paying fee of $25. They must conduct office under full name of owners of the practice.

2. Foods and Drugs. (a) H. 88. Fresh food fish to be graded and sold as (1) new fish, (2) fresh fish, (3) fish suitable only for splitting and salting or preserving.

(b) H. 365. Requires health department permit for manufacture of non-alcoholic beverages, inspection of premises with power to revoke permit, sanitary use and storage of materials, no refilling, and supervision by health department (state, except in Boston; there local).

(c) H. 599. Amends cold storage law, reducing period of allowable storage from twelve to six months, except longer period with consent of State Health Department.

(d) H. 745. Requires physical examination of food handlers on employment and every six months.

(e) H. 746. Requires local boards of health to make frequent inspections of places where food is kept for sale or storage—$100 fine for insanitary conditions, $200 for subsequent offenses.

(f) H. 748. Requires marking of quality, date of packing on sealed containers of foods.

(g) H. 956. Changes penalty of fine or imprisonment for unlawful possession of instrument for use of narcotic drugs to jail sentence of from 3 to 12 months. Same penalty for keeping a drug resort. Penalty of jail sentence from 3 months to 2½ years for unlawful possession of narcotics instead of fine or imprisonment.

3. Maternity. S. 259. Provides maternity benefits for pregnant women for one or more weeks, to be administered by the State Department of Public Health.

4. Medical Practice. (a) H. 598. Would license as "assistants in medicine" two-year medical students, to work under supervision of physicians. These "assistants" could sign birth certificates.

(b) H. 955. Amends law relating to registration of physicians by requiring a year's service as interne before such registration. The number of weeks required in a year of medical school would be reduced from 36 to 32. Premedical standards are fully set out.

5. School Hygiene. H. 601. Changes law requiring physical examinations of pupils in public schools from mandatory to permissive. Exempts children whose parents object.

6. State Government. H. 744. Department of Public Health directed to manufacture and distribute antirabetic serum.

7. Tuberculosis. H. 534. Requires marking of cows which have been tuberculin tested and transfer of records of reactors when sold.

8. Vaccination. (a) S. 130. Would exempt from vaccination children whose parents oppose it.

(b) S. 215. Allowing person vaccinated under direction of board of health to recover damages for any injury resulting therefrom.

(c) H. 1056. To eliminate requirement of a physician's certificate as to vaccination as prerequisite to admission to public schools.

New York

A. PROGRESS

("A. I." is Assembly; "S. I." Senate bills. "I" means the introductory number.)

1. Mental Hygiene. A. I. 139. Providing for a state hospital for mental diseases and appropriating $3,000,000 for it was substituted for the Senate bill and passed the Senate on January 31, 1922.

B. NEW BILLS

1. Birth Control. A. I. 424. To amend penal law concerning "information regarding the protection of maternity and infancy, otherwise known as birth control."

2. Chiropractic. S. I. 368. Provides for a board of chiropractic examiners, their duties, the licensing of chiropractors on examination, and their qualifications for taking it. A license would be issued without examination to those having practiced for one year prior to the passage of the act.

3. Dentistry. A. I. 490. Amends law. Lowers age of applicants for examination from twenty to nineteen years. Penalties are increased. Dental corporations ceasing to exist to lose their charters.

4. Food and Drugs. (a) S. I. 274. Amends farms and markets law by giving increased jurisdiction to local departments of public markets.

(b) S. I. 338; A. I. 401. Provides for control of possession, sale, prescribing, dispensing, dealing in and distribution of habit-forming drugs.

(c) A. I. 496. This is a 300-page bill making changes in the farms and markets law, the public-health law and the county law relating to matters within the jurisdiction of the department of farms and markets.

5. Garbage. (a) A. I. 409. Garbage and refuse not to be thrown in waters inhabited by game or food fish.

(b) A. I. 328. Garbage and rubbish not to be deposited on highways.

6. Mental Hygiene. (a) S. I. 451; A. I. 658. (Conc. Res.) Provides a commissioner on mental hygiene. Adds institutions for epileptics, idiots, feeble-minded and mentally defective to inspection list of commissioner.

(b) A. I. 493. Amends insanity law in relation to commitment of the insane.

7. Motion Pictures. A. I. 369. Requires that Commission "shall issue permits to films for educational purposes."

8. Municipal Health. S. I. 240. Compensation of local health officers is computed at ten cents per annum per inhabitant where less than 8,000 population. This bill would exclude inmates of state institutions from such computation.

9. State Government. (a) S. I. 399. Gives war veterans, including nurses, preference in civil service examinations.

(b) S. I. 449; A. I. 599. To reorganize state government. Include departments of health and mental hygiene.

10. Vivisection. S. I. 31; A. I. 353. To amend penal law by prohibiting experiments on living dogs.

Virginia

1. Tuberculosis. (a) S. 179. To provide a pavilion at Catawba and Piedmont Sanitoria for the care of young children with active tuberculosis infection.

(b) S. 180. To erect an infirmary for advanced cases of tuberculosis among the negro race.

(c) S. 182. To establish a field unit under the Bureau of Tuberculosis Education in the State Board of Health, and to maintain clinics for undernourished children.

2. Hotel Inspection. H. 12. This bill, transferring sanitary inspection of hotels from the State Health Department to the State Dairy and Food Commissioner, has passed the legislature.

STATE HEALTH NOTES—GENERAL

Arizona

Seven hundred and twenty-nine cases, representing 593 families, were under the care of the Maricopa County Antituberculosis Society and the free clinic during September, 1921. The report of the nurse in charge shows that in addition to the clinic work the nurses made 327 calls, while there was a total attendance of 313 patients at the clinics.

Florida

Tampa has just closed the most successful "Fair" in the history of the state.

Every food or drink-selling establishment had complied sedulously with sanitary regulations, and so far as the fiscal conditions permitted, the sanitation of all these establishments was excellent. The people and concessionaires were equally pleased with the improved condition, and Tampa feels that it has set a standard of sanitation for temporary eating concessions for the South.

Tampa's Health Department is less than a year old and is endeavoring to bring conditions in this region up to the best standard of sanitation.

Illinois

The unexpected resignation of Dr. John Dill Robertson, health commissioner of Chicago, on February 1, is of special interest, owing to the importance of the post, and to Dr. Robertson's remarkable record during the seven years of his administration. Dr. Herman N. Bundesen, formerly epidemiologist of the Department, was at once appointed to the Commissionership by Mayor Thompson, on the recommendation of Dr. Robertson. It is understood that Dr. Robertson intends to develop a commercial organization for health education and publicity, utilizing health lectures, graphic methods, training schools for home nurses, health expositions, and other media for disseminating to the public throughout the nation a knowledge of health fundamentals.

In his letter of resignation to the Mayor, Dr. Robertson mentioned the following items among others in the record of accomplishment of the administration:

"Seven years ago the water supply of Chicago was not safeguarded. Numerous cases of typhoid fever were caused by contaminated water; to-day the water supply is completely chlorinated, and the typhoid fever incidence and typhoid fever deaths are the lowest of any large city in the world. The lowering of the morbidity and mortality from this disease represents a reduction of 87½ per cent during your term as Mayor.

"Seven years ago less than two-thirds of Chicago's milk supply was pasteurized; to-day all of it is pasteurized, except about two per cent, the production of which is supervised by the Chicago Milk Commission and is known as certified milk. In order to bring this condition about it was necessary for me to request you to rescind the milk licenses of more than one thousand dirty milk dealers. Not once did you fail to back up the Department of Health in its fight for safe milk for the babies of Chicago. The net result of your support is that there has not been a milk- or food-borne epidemic in Chicago since October 1, 1915. Prior to that time, from 1911 to 1915, there were nineteen such epidemics.

"A safe milk supply has not only helped to make it possible for us to record our low typhoid fever rate, but it has reduced the deaths in children under one year of age from one death in each 7.4 born to one death in each 12 born; in other words, has effected a saving of the lives of three hundred thousand babies each year.

"The reduction of an average of 366 deaths per year from scarlet fever under your administration, representing a decrease of approximately 70 per cent; the reduction in deaths from tuberculosis from twelve deaths per day as in 1915 to six per day as in 1921, could not have been made without your continuous support and aid in carrying out the policies of this Department.

"Chicago's death-rate for the year just passed was only eleven per thousand; in other words, it has now reached not only the lowest point ever attained, but probably about the lowest point possible of attainment.

"Ninety-nine per cent of the babies born in Chicago in 1921 were registered; in other words, complete birth registration has been accomplished.

"The records show that during your administration the Health Department has effected a saving of 21,250 lives from loss through the major contagious diseases, such as tuberculosis, typhoid fever, diphtheria, scarlet fever, pneumonia and measles. The Illinois legislature has placed a value of ten thousand dollars upon a human life as a measure of damages. At this value, the economic saving effected was $212,500,000.00, or about thirty times the total expense of operating the Health Department during that period of time. This does not take into account the saving from loss of time or the actual expense of sickness to the individual."

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According to an opinion recently handed down by the Attorney General, it is within the power of the State Department of Public Health to declare that a state of limited quarantine exists in any municipality where an epidemic of smallpox has appeared or threatens to develop and that under the terms of such limited quarantine it would be legal to require all persons about to travel on common carriers to produce evidences of protection against smallpox, either by reason of vaccination or of having had the disease. The opinion further states that the enforcement of such regulations can legally be required from local health authorities.

The opinion of the attorney general in this matter came as a result of a request from the state director of public health who

has some such action under contemplation because of lax quarantine conditions at certain points where smallpox has been more or less epidemic for the past few months.

✣

A mild epidemic of scarlet fever recently developed at the flying field near Rantoul, where more than 100 persons fell victims to the disease. Because a rather large percentage of the patients were adults, certain camp physicians felt inclined toward a diagnosis of influenza. At all events, the situation was serious enough to bring about the establishment of regular medical inspection of school children in Rantoul so that greater preventive protection is now afforded them against this, as well as all other communicable diseases.

✣

At a recent conference which was jointly participated in by the State Departments of Public Health and Agriculture and by the University of Illinois, an outline for a model ordinance governing the production and sale of milk for municipalities in the state was developed. The matter was left in the hands of a committee for final drafting and will be published as early as practical.

✣

At the request of local organizations, a new clinic for crippled children has been established by the State Department of Public Health at Kewanee. The clinic is conducted under the supervision of Dr. C. W. East and is supported through the coöperation of a committee of local physicians, the Rotary Club, the Red Cross and local health departments. This brings the total number of such clinics that are now in operation throughout the state up to twenty-five.

Kentucky

The Court of Appeals of Kentucky has decided that, under the statutes, the State Board of Health can forbid the furnishing by a company of impure water to a community on the ground that such water is a nuisance, but cannot direct the use of any particular method of purification.

Maine

After conference with leaders of representative groups of Maine men and women, the Maine Public Health Association has formulated and launched a three-year program of work which will meet the health needs of the state through the wise expenditure of time and money and through the prevention of duplication of effort.

Among the important elements of the program are:

Every community in the state to receive the services of a public-health nurse so that mothers will be intelligently advised and assisted in the care of self and child both before and after birth. Each nurse will also include in her daily work, beside nursing, proper feeding and care of the growing child, watching in her community for contagious diseases, home talks and public lectures on health matters before representative organizations, etc.

Every school child in the state enrolled as a Modern Health Crusader. This means teaching health habits by means of the child's love of pageantry and ceremony.

Development of industrial nursing in larger industrie in coöperation with the Associated Industries of Maine.

Continuation of post-graduate clinics for Maine physicians in coöperation with Maine Medical Association.

Educational campaign by which it is hoped to accomplish health talks in every local, social, fraternal, labor, commercial and civic organization in the state, by means of moving pictures, stereopticon slides, lectures, exhibits, distribution of literature, public speakers, etc. In developing this phase of the plan, active coöperation will maintain between the Maine Public Health Association and the State Department of Health, the Maine State Grange, the Maine State Federation of Labor, the Maine Department of the American Legion, the Maine State Federation of Women's Clubs and other state organizations.

Involved in the plan are a number of statewide campaigns directed specifically at definite causes of needless illness, suffering and unhappiness. These include:

A campaign for the control of cancer.

Continuation of the campaign for the eradication of tuberculosis.

A campaign for the conservation of the eyes, prevention of blindness, etc.

A campaign, first for the control and later for the eradication of social diseases.

A campaign for the development of mental hygiene.

A campaign for the strengthening of local health associations and committees.

A campaign for the protection of Maine babies, nearly 2,000 of whom die each year before they have had a birthday.

A campaign on the importance of proper care of the teeth.

Maine is now widely recognized as the playground of the nation. With the development of the Health Plan, it is predicted that this state will become renowned as the healthiest state in the Union.

Massachusetts

The Boston Tuberculosis Association has just completed a survey in tuberculosis in which the relationships of out-patient departments of hospitals to their patients were considered. It was found that a positive diagnosis of pulmonary tuberculosis received immediate attention. About ninety per cent of the patients receiving this diagnosis entered institutions very shortly thereafter, notification of cases to the City Health Department was prompt and complete and follow-up work by the public-health nurses was satisfactory. With other forms of tuberculosis, notification dropped to less than fifty per cent. With a "provisional" diagnosis of pulmonary tuberculosis, less interest was awakened. There was no one of the individuals thus diagnosed who returned to the original institution for further examination, although all were asked to do so. There was little systematic follow-up. The need of the return of such patients for further examination is shown by the fact that a scant third of these individuals were afterwards examined at other institutions or by private physicians, and of these two-thirds had in the meantime developed pulmonary tuberculosis. It is estimated that among the "provisionals" in this group, who have been lost to sight, there are 220 active cases at the present time, which a follow-up might have detected and cared for. It was found that examinations of contacts reached only about one-fifth of the entire number. These are individuals living in families in which there is an adult with consumption. The children of such families should be examined and cared for, for they are to a considerable extent the consumptives of the future. The statistics were assembled by Miss Bernice W. Billings, executive secretary of the Association. (J.R.)

Michigan

No one may now work for the State Department of Health who does not accept the principle of smallpox prevention by vaccination, according to a recent ruling, following development of smallpox among the unvaccinated children of one of the department's employees.

The father of the unvaccinated children, who it is alleged did not approve of vaccination, was employed in a position where he had an opportunity to learn something of the principles of preventive medicine, so that there was even less excuse than parents ordinarily have for failure to protect their children against a preventable disease such as smallpox.

Michigan reported 4,537 cases of smallpox in 1921, an excess of the number of cases reported by any of forty other states in the Union. The population is unusually susceptible to smallpox owing to negligence in carrying out vaccination. The disease has appeared in virulent form in some states and a wildfire epidemic which might kill its victims with seventeenth century fearlessness is entirely possible. It is, in fact, a probability which every health worker realizes and can only warn against by advising vaccination of every baby before reaching 18 months of age and vaccination of all persons who have not been vaccinated within the past five years.

✠

Communicable diseases attacked one out of every 56.4 persons in the state in 1921, compared to a ratio of one out of every 42.2 during the preceding year, according to the reports of the State Department of Health. This represents a decrease in reported cases of sickness from 88,179 in 1920 to 67,780 in 1921.

Six important diseases—measles, pneumonia, meningitis, syphilis, gonorrhea, and chancroid—show decreases totaling 20,399 cases over the preceding year. Seven diseases — diphtheria, poliomyelitis, scarlet fever, smallpox, tuberculosis, typhoid fever, and whooping cough—show increases amounting to 6,377 cases over their 1920 total.

The increase in infantile paralysis from 61 cases to 478 is regarded seriously by authorities, since it may presage an epidemic of the disease during 1922.

Not a single death or case of water-borne sickness has been traced to drinking water supplied by steam and electric railroads in Michigan the past two years, according to records kept by the state department of health.

This degree of safety was reached, officials say, by rigid inspection of sources of water supply, thus protecting the health of more than 25,000,000 passengers annually, who use the drinking water supplied by trains and interurbans.

Minnesota

Three counties of Minnesota—Beltrami, Hubbard and Koochiching—are planning to use during the month of April a film portraying the course of tuberculosis from the time it is discovered in the herd to the time when the girl in the family returns from a sanitorium cured. Clinics will be held at the same time the film is shown in the various centers. Good results have already been apparent from the clinic held in December, and it is planned to hold a number more during the summer season in Minnesota's fight against tuberculosis.

✠

A public-health institute was held in Minneapolis, March 20-25. A feature of the institute was a straight course in maternal and infant hygiene, directed by Dr. E. P. Lyon, dean of the Medical School of the University of Minnesota.

✠

In order to take advantage of the Federal Act for the promotion of the welfare and hygiene of maternity and infancy, and for other purposes, the State Board of Health created a division of child hygiene and gave the executive committee power to act on any matter, including the appointment of a staff and the fixing of salaries necessary for initiating the work of the division in case the appropriation becomes available before the April meeting of the board.

The board further appointed a State advisory Board on Maternal and Infant Hygiene of seven members, the functions of the board to be as follows:

1. To suggest rules and regulations for adoption by state boards of health as authorized under Chapter 392, Session Laws of 1921, to carry into effect the provisions of this act.

2. To pass upon plans of county or district boards on maternal and infant hygiene.

3. To advise the State Board of Health what assistance be given to county or district boards whose plans are approved.

4. To secure coöperative action through the various agencies represented by the members of the Board in carrying out the provisions of the federal and state laws on maternal and infant hygiene and to promote the public health and child welfare program in Minnesota.

The Board also provided for county and district boards.

New York

The death-rate of New York state for the year 1921 reached the new low level of 12.2 per thousand of the population, according to calculations completed by the State Health Department's Division of Vital Statistics. This rate may be compared with that of 13.8 for the year 1920 and 14.7 for 1914, the year in which the State Department of Health was reorganized and took on its present form.

In terms of lives saved, the rate for 1921 means that approximately 16,000 more residents of the state are now living than would have been the case if the 1920 death-rate had not been reduced as above indicated. Comparing 1921 with 1914, the difference in the death-rate means that 26,000 more people are now alive than would have been if the 1914 rate had prevailed up to the present time. New York City, with a death-rate of 11.2 still retains its lead over the remainder of the state, for which the 1921 rate was 13.5 per 1,000 of population.

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The great scarcity of rural physicians in the northern part of New York state is emphasized in severe winter weather, when it is impossible to keep the country roads open for automobiles. Byron Haskin, M. D., health officer at Theresa, New York, reports that the establishment of a rural hospital in his district has done much to relieve the situation. The hospital was started by a middle aged woman who had done much practical nursing. The support of the Red Cross, local fire departments and fraternal organizations was secured, all of which enabled the hospital to operate with very light running expenses.

Patients have good care, and physicians are relieved of long drives and hours of

waiting. During the two years of the existence of the hospital, 225 patients have been treated. There have been 45 throat operations, 67 confinement cases, 2 typhoid fever cases and 7 pneumonia cases. Only 2 deaths have occurred.

North Carolina

The Health Department of the city of Winston-Salem, N. C., has just published its annual report for 1921. This, the fifth annual report of the department, is similar to the report for 1920 in scope and size. The Health Department deserves to be complimented not only on the excellent showing of work done, but for its presentation in graphic and simple form. The report is unique in that it includes not merely a statistical record of work accomplished, but on the basis of these records the value of health work is explained and quotations are included from various health authorities. It constitutes, in fact, an elementary health manual for the lay worker. It is quite frankly addressed to the "average citizen" of Winston-Salem, and should succeed in enlisting the continued support of these people for the Department of Health.

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A reduction of approximately eighty per cent in the number of deaths from typhoid fever within the past ten years is indicated in preliminary figures compiled by the State Board of Health for the year 1921. Starting with an unusually early spring and the development of an alarming number of cases in the first third of the year, 1921 proved to be the best yet recorded in the fight against this disease, which ten years ago was claiming in excess of a thousand victims each year. The decrease in deaths from typhoid fever has been continued and marked. The figures for the years tell the story: 1915, 744; 1916, 700; 1917, 726; 1918, 502; 1919, 427; 1920, 330; 1921, 280.

An active antityphoid campaign was inaugurated early in 1921 and carried forward in fifty counties of the state. In this were enlisted county and city health officers and a large number of private physicians. In twenty-five of the counties not having health departments the aid of eighty-six physicians was secured for the purpose of administering antityphoid vaccine, and the results achieved exceeded any year since this method of combating this filth-borne disease has been used in North Carolina.

Improved sanitary conditions hold first place as the cause of the achievement. Throughout the state there has been a wonderful betterment in public water supplies, in safer production and handling of milk, and in the proper disposal of sewage. The state law requiring sanitary privies wherever water sewerage systems were not available has probably been the biggest single factor. North Carolina has the distinction of being the only state having such legislation, and it has been very successfully enforced. The vaccination campaigns have during the period conferred temporary immunity upon approximately one million of the population of the state, and at the same time have had a tremendous educational influence towards improved sanitation.

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With a total of 89,623 births registered for the past year, North Carolina has broken its own record for the highest birth-rate in the Union, established in 1920. At the same time a new low level in the death-rate for the state is established.

While the birth-rate is a matter of pride, yet it is the death-rate that health officials watch most closely, and the constantly declining death-rate in this state is the cause of genuine gratification. In terms of lives saved, the lowering of the death rate for 1921 as against the previous years means that approximately 3,292 more people are today alive and serving their respective communities than would have been if the 1920 rate had prevailed. The figures eloquently attest the fact that North Carolina is a good place in which to be born and to live, and that its people as a whole are constantly growing healthier and happier.

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Pennsylvania

A public-health institute was held in Pittsburgh, February 20-24, under the auspices of the University of Pittsburgh, the U. S. Public Health Service and the State Board of Health The Pittsburgh institute confined itself to courses on venereal diseases and allied problems, and to industrial hygiene. There was a special conference for women not professionally interested in public-health work, at which Dr. Rachelle Yarros was the leading speaker.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst and E. B. Starr.

Ventilation, Weather, and the Common Cold.—This dissertation presented in partial fulfillment of the requirements for a higher degree at the University of Michigan is a study of the presence of respiratory affection among school children and its association with school ventilation and the seasonal changes in weather. Sickness surveys in different types of ventilated school rooms were made with particular attention to humidity, freshness and odor of the air, the sensation of temperature, sensation of moisture, air motion, and a discussion of the ventilation types represented in this study. The paper is replete with tables and graphic charts. The author states that "there appears to be something inherent in the indirect method of ventilating school rooms by means of forced draught and gravity exhaust, as practiced in this study, that is productive of respiratory affections, something which is not present in rooms ventilated with windows and gravity exhaust. What these unfavorable elements are is not entirely clear. Higher temperature is one. Uniformity of temperature and air flow is another. Uniformity is characteristic of the fan-ventilated room. In an unvarying atmosphere the occupants miss that pleasant stimulating effect. Evidently the absence of this quality affects health adversely as well as comfort." "The temperature of window-ventilated school rooms may be reduced as low as 59 degrees without increasing the prevalence of colds." The fact remains that window ventilation competed on favorable terms, from a hygienic and aesthetic standpoint, with the most elaborate and costly fan and duct equipment. The author states that while this may be true for the ordinary school room it does not follow that large assembly rooms would be similarly affected. Each type of inclosure must be handled as a distinct problem. The author advises a constantly changing atmospheric condition, without draughts, between 64 and 70 degrees temperature, with the mean lying nearer the lower figure. It is also not to be overlooked that respiratory affections increase with the onset of cold weather, irrespective of the type of room ventilation. Abrupt changes in temperature do not influence respiratory illness as much as one might expect from every day experience.—Geo. T. Palmer, *Jour. of Laboratory and Clinical Medicine,* Aug., Sept., Oct., 1921.—*E. R. H.*

✠

The Treatment of Carbon Monoxide Poisoning.—After summarizing the frequency of causes of carbon monoxide poisoning, the commoner causes, and the chief symptoms of both acute and chronic forms, the authors insist on the vital importance of eliminating carbon monoxide poisoning from the blood as rapidly as possible. Since oxygen is the natural substitute its use should be produced rapidly and thoroughly. The oxygen should if possible be given through an inhalator similar to the Tissok army face mask which can be fastened over the patient's face; otherwise through a nasal catheter; or it can be sprayed directly about the patient's face. Its use should be kept up for at least twenty minutes. The authors recommend that all ambulances be equipped with oxygen tanks. The importance of the Schaeffer method of resuscitation as a first-aid means is stated and the method is briefly described. This procedure should be continued for at least three hours, during which time the patient's general comfort should be seen to and he should be kept quiet for fear of heart failure for some time after recovery. External warmth is especially to be applied as well as stimulants.—R. R. Sayers and H. R. O'Brien, *U. S. Bur. of Mines, Serial No. 2304,* December, 1921.—*E. R. H.*

✠

Sickness Frequency Among Industrial Employees.—This is a further report of the continuous study which is being made by the Service of the sickness frequency among industrial employees in a number of sick benefit associations of employees who are coöperating with the Service. The summaries for the first eighteen months' experience are presented. Cases of sickness of less than a week's duration are not included. Therefore, only the more serious cases of sickness and non-industrial accidents are covered. Only a small proportion of the membership is composed of women. The striking effect of seasonal variations in sickness incidence is shown in the

charts and tables which accompany, serious illness occurring about twice as often in the winter season. This is particularly true of respiratory diseases. On the other hand, digestive diseases exhibit no tendency toward seasonal variation. Tonsillitis and other diseases of the pharynx follow the characteristic curves of the other respiratory diseases. There is a tendency of the peak of the curve for rheumatism to be reached a month or two later than for the three respiratory diseases mentioned. Rheumatism is most frequent in the spring. The severity rate for one benefit association as compared to another varied enormously, e. g., from 10.27 calendar days of disability per person in one organization to only 1.54 days of disability per person in another.—*U. S. Public Health Reports,* Vol. 37, No. 1, January 6, 1922, pp. 2-9.—*E. R. H.*

✠

Tuberculosis in Relation to Industry.—In this lecture Cummins views the subject of tuberculosis in relation to industry from the standpoint of a careful student of tuberculosis rather than from the point of view of the industrial specialist or the statistician. "In a 'social' disease like tuberculosis, occupation, circumstances, and surroundings most inevitably play a large part." The author values highly the mortality statistical observations made by Brownlee and Greenwood, but deplores the fact that mortality statistics are almost the only statistics of a reliable kind at our disposal. In the populations of industrial centers infection tends to take place early, to be frequently repeated and almost universal shortly after the age of puberty. The proportion, however, of fatal cases to total infections is low in the big towns and high in rural districts. The ingestion or inhalation of tubercule bacilli must, in large cities, be a daily occurrence. The question is then raised whether auto-infection or fresh-infection is the more important. In favor of the theory of recrudescence of infection is the instance of mortality rates among soldiers serving at the front from whose midst the active cases had been taken out by draft examinations. The question of special industrial hazards in the form of dust is relatively less important than the other factors which have a more general application to the industrial group and include bad housing, unsuitable conditions of work, crowding, unhealthy temperatures, bad ventilation, low wages, poor food, and lack of open air exercise. In this connection the author points out that it is not hard work that matters; that hard work, such as that performed by the coal miners of England, is conducive to optimum physical condition. The author contrasts the condition of shoemakers whose tuberculosis mortality is very high and whose work requires cramped position, lack of hard physical exercise, long hours of monotonous repetition of detail. These workmen suffer by reason of the marked departure from what the author is pleased to call "physiological righteousness." The author then takes up the investigation of J. Brownlee among various groups of industrial males, in whom the apex of highest mortality is at about 50 years (the chronic middle age type). In all these occupations it is the stress of environmental factors which act in undermining the resistance and awakening dormant infection. As for females who pass their time in the relative isolation of domestic duties, the author again refers to the finding of Brownlee that the peak of mortality comes earlier with females in the period 30 to 40. In other words the domestic female is less resistant than the industrial male and gets the disease in more acute form. The female in entering upon industrial life is thus poorly prepared for the "bacterial flora" found there. Under such circumstances the young females entering industry, develop the peak of mortality early, from 15 to 20 years, as found by Greenwood among female munition workers. The average resistance of the industrial community is relatively high. Above the average is the adult industrial male, whose resistance is broken later in life by stress. Among these, however, are those exposed to specific trade dangers, silica and other dusts, whose resistance is likely to be broken earlier, and for whom special precautions must be taken. Below the average in resistance are the domestic females who die earlier (early acute type), but at a lower rate than the industrial male. Infants and young children will be in greater danger the more women participate in industry and gradually assume the chronic resistant type of tuberculosis found in the industrial male.

As to the practical bearing of these views in the management of industrial tuberculosis, the author divides individuals into two classes: those in whom infection plays a small part and those in whom it plays a large part. In the former are the great class of males who

are not exposed to the dangers of industrial dusts, and among whom the lines of prophylaxis should be directed to relief from unhygienic stress, poverty, etc. In the second class are males exposed to dangerous dusts, and young industrial females, in both of whom the factor of infection is important (in females because of low resistance). In this class careful medical supervision with the prompt exclusion of active cases is imperative.—S. Lyle Cummins, *Jour. of State Medicine* (London), Vol. 30, No. 1, January, 1922, pp. 4-14.—*E. B. S.*

✠

Health and Welfare in the Coal Mining Industry.—The author briefly describes the evolution of industry and the general recognition, especially since the beginning of the war, of the human element needs, which had hitherto been so largely neglected. Citation is made to the Police, Factories, etc., Act of 1916, and the Mining Industry Act of 1920. The latter provides for the establishment within mining units of machinery and funds to permit activities along the lines of safety, health and welfare. The law provides for the setting up of pit and district committees and area committees, half the personnel of which must be representative of the miners. The author describes the lines along which the best results are likely to be attained, both in improvements during working hours, and outside of working hours. Besides demonstrating the great cost of labor turnover and the serious effects on industry and the men, the author describes the means, namely vocational selection, by which much of this trouble may be overcome. The author lays down four essentials for contentment and health during working hours: proper air to breathe, good water to drink, good food to eat, and a healthy skin. Reference is made to the benefits that have accrued to the manufacturing industry by the installation of canteens, and while it would not be feasible to carry out this program in the mining industry, it certainly seems feasible to provide the "colliery kitchen" where freshly cooked food could be prepared at the pit and sent down into the mine. Stress is laid on the great importance of maintaining a state of health in that very important organ of the body, the skin, and the moral advantages attained thereby.

Poor underground lighting is a contributing cause of many accidents and also of miners' nystagmus, so common among miners in the United Kingdom, 6,000 of whom are incapacitated thereby. The question of bronchitis and pneumonia is in need of special study in certain of the coalfields. The author indicates the directions in which improvements should take place, under the Mining Industry Act, in the time spent outside of working hours. Besides the usual athletic activities providing recreation, the author refers to the great benefit that has come from the allotment of gardening space. Provisions may be made for greater facilities for education as already provided by some mine operators. Finally the author directs attention to a very interesting observation in connection with the problem of industrial unrest, namely, the close relation existing between mortality in the seven great coalfields, and industrial unrest, as expressed in terms of strikes. Four types of disability are found to account for the divergencies in death-rates in the seven coal fields: accidents, pneumonia, bronchitis, and tuberculosis. In this connection the author makes the statement that "the evidence is almost tantamount to proof that the usual reasons given for social unrest are merely conscious efforts to explain unconscious impulses, and that these unconscious impulses are founded upon health, or, more correctly, upon ill-health."—Collis, Edgar L., *Jour. of State Medicine* (London), Vol. 30, No. 1, January, 1922, pp. 15-27.—*E. B. S.*

✠

A New Journal of Industrial Medicine.—The Belgique Ministere of Industry is editing *Bulletin du Service Medical du Travail,* the first two numbers (Volume 1) of which, under date of June 30, 1921, have just appeared. The journal is published at Bruxelles, Imprimerie-Lithographie Stevens, 9, Rue des Fortifications, 9. It is quarterly and is priced at 4 francs. The volume at hand contains 141 pages and is in French. The contents of the volume are divided into four parts: (1) official documents, (2) service activities, (3) studies in hygiene and industrial medicine, and (4) analyses, abstracts, and biliographical notes. The six studies coming under Part III include the following: "Hygiene and Vulcanization of Rubber by Means of Carbon Bisulphide," by M. le Docteur Vandermierden, Directeur. "The Effects of Working in Hot and Humid Atmosphere," by M. le Docteur Thisquen, Inspecteur-principal. "Tendosynovitis of the Wrist," by M. le Docteur Buyse, Inspecteur-principal. "The Toxicity of Modern Explo-

sives," by M. le Docteur Glibert, Inspecteur-general. "A Note upon Intoxication with Dinitrobenzene," by M. le Docteur Buyse, Inspecteur-principal. "Contribution to the Study of Mercurialism in Fur Dressers," by M. Ch. Biot. Inspecteur et Directeur du Laboratorie.—*E. R. H.*

✣

Common Salt Not a Source of Iodine in the United States.—After reviewing the literature on the relation between goiter and the absence of iodine in the diet, the writer goes into the geochemistry of our ordinary condimental salts including sodium chloride and sodium iodide. The infrequency of goiter in maritime districts is noted. The source and preparation of common salt and its uses in the United States are discussed. The average per capita consumption per person was 116 pounds per year (1919). Table and dietary salt makes up about 10 per cent of the total produced, about 96 per cent of which is from inland (rock salt deposits) which is inherently free of iodine and the salt put upon the market for dietary purposes is so purified as to be bereft of all iodine and many other salts, found and acknowledged to be of use in the animal body. Among his conclusions the author states as follows: "Practically all salt used in the United States for dietary consumption is obtained from inland sources by the evaporation of brines, which for the most part are inherently free of iodine."

"Irrespective of the source, whether sea water or inland deposits, the modern processes of preparing and purifying salt free it from all traces of iodine, as well as its other naturally associated elements, many of which are identical with the body fluids of higher animals."

"An analogy should be drawn from sea life and a precept taken from evolution. Of the dependable sources of iodine in nature—sea air, sea food and sea water—it is to sea water, used perhaps in place of common salt as a condiment, that inland dwellers should look. This substitution would appear to offer a complete solution to the iodine deficiency problem, if nothing else, while evidence would tend to show that other constituents of sea water have also an undoubted place in the economy of the higher animal organism, perhaps to the extent of precluding some diseases which are likewise, possibly, of a deficiency type. Common salt for dietary purposes should include not only sodium chloride but also sodium iodide, and undoubtedly many of its other original concomitants. For geochemical reasons, great care should be taken in selecting its source, if it is not actually derived always from sea water. It must then be handled commercially in a manner to retain these constituents."—E. R. Hayhurst, *Jour. of the Amer. Medical Assoc.*, Jan. 7, 1922, Vol. 78, pp. 18-21—*E. R. H.*

✣

Industrial Nursing As a Means of Fighting Tuberculosis—"The public-health nurse in industry is, to my mind, the educator. Her fundamental task is to educate not only the employee, but the employer as well. There are certain things which the nurse alone can do (and I say this with all due respect to the medical profession). The nurse will have to meet responsibilities in industry which will be her's, rather than the physician's, because she has the possibility of making intimate contacts in the home. . . .

"To-day we have great, large industries where the employers are very much detached from the employees and it happens only too frequently that the employer has no knowledge of the conditions in the homes of his employees. The instances are only too frequent where men come in to work and are accused of listlessness and are fired. The employer may not know that the listlessness may have been caused because the employee may have sat up all night nursing a sick wife or child. It is the industrial nurse who goes into the home, who sees these conditions, and who can bring them to the knowledge of the employer.

"It is a part of the duty of an industrial nurse to see that industry takes proper care of its employees, not only by seeing that their homes and surroundings are proper, but that they get proper food, live in decent houses and have time for rest and recreation. It is also her duty to see that there are sanitary conditions in the plant and that the safety conditions are at the maximum.

"When we can get these things, when the nurse can get into the right relationship with the employer, get his sympathetic coöperation and good-will and make him see the larger vision of his relationship to his employees, then we are going to see among the early results the introduction of periodic health examinations. The inevitable result will be that we are going to find cases of tuberculosis that are unknown to-day. We are going to find early treatment and every probability of cure."—Lee K. Frankel, *Public Health Nurse*, January, 1922.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Viability of the Colon-Typhoid Group in Carbonated Beverages.—Under the conditions of these experiments, carbonation exerts a distinctly harmful effect upon the members of the colon-typhoid group and their period of viability in carbonated water is much shorter than that in plain tap water. The destructive effect of the carbon dioxide is especially marked at room temperature, 19° to 23° C., and less so at 1° C. In a "non-acid" beverage, the organisms may persist for a slightly longer period than in carbonated water. In beverages containing 0.094 per cent or greater amounts of citric or lactic acids, the death-rate is very rapid and is apparently due to the effect of these acids, irrespective of the carbon dioxide. Bact. typhosum and Bact. paratyphosum B are more readily destroyed by carbon dioxide than is Bact. coli. The spore forms of a common aërobe, B. mesentericus, and of a common anaërobe, Clost. sporogenes, were found to be quite resistant to carbonation, surviving one month at room temperature with no apparent diminution in numbers.—S. A. Koser and W. W. Skinner, *Jour, Bact.* 7, 111 (1922).

✠

Quantitative Bacteriology of the Tonsils.—The results of this work indicate that tonsils should not be regarded as harmless because they are small. It is often not possible to express pus from the smaller tonsils, because drainage of the crypts is prevented by fibrous tissue. The total bacterial content, as well as the number of bacteria per gram, may be much greater than that of large tonsils. Quantitative bacteriology is of more aid than is qualitative bacteriology in determining the condition of tonsils that have been removed, and in determining their possible relation to disease elsewhere in the body.—H. D. Caylor and George F. Dick, *Jour. A. M. A.*, 78, 570 (1922).

✠

Collodial Gold Chlorid Curve in Epidemic Encephalitis.—No characteristic collodial gold chlorid curve was obtained by the author with cerebrospinal fluids in epidemic encephalitis. When there was a color change, it occurred in the lower spinal fluid dilutions (syphilitic zone). This result agrees with those in the recent publications of Davis and Kraus, Happ and Mason, and Neal. There was no relation between the colloidal gold chlorid reaction and the duration of the disease. The colloidal gold chlorid curve apparently was not influenced by the total cell count, nor by the polymorphonuclear or mononuclear leukocytic percentages. The colloidal gold curve did not depend on the globulin content of the fluids. There was no relationship between the colloidal gold chlorid reaction and the colloidal benzoin precipitation reaction. The Wassermann reaction with all fluids was negative. Spinal fluid from a patient with epidemic encephalitis may give a typical paretic curve with colloidal gold chlorid when there are no symptoms or history of syphilis.—K. M. Howell, *Arch. of Neur. and Psych.*, 7, 229 (1922); *Jour. A. M. A.*, 78, 542 (1922).

✠

The Influence On Spore Formation of Sealing Bacterial Cultures.—The reduction of methylene blue in culture tubes of sterile media closed with sealing wax proves that a reduction in oxygen tension can be obtained by this simple method. The moisture of the medium is also preserved over a long period. Sealing cultures retarded the formation of spores and killed the majority of the vegetative forms of the aërobes and facultative anaërobes but not of the obligatory anaërobes. It affected the vegetative growth of obligatory aërobes more rapidly and intensely than that of facultative anaërobes. It did not apparently affect the growth of obligatory anaërobes as compared with that in unsealed culture tubes containing a small piece of sterile tissue. Among the aërobes and facultative anaërobes, spore formation was retarded a few days longer in the second sealed series inoculated from the first than in the first sealed series, after which no variation in the time of appearance of spores occurred in cultures carried through six successive series. The results obtained with the anthrax bacillus differed from those of the other facultative anaërobes and showed no uniformity. Experiments with different salts appeared to increase the rate of spore production and the spore formation under partial oxygen

tension. The absence of a free supply of oxygen caused a temporary change in the form of the bacillus.—Laura Florence, *Jour. Lab. Clin. Med.*, 7, 199 (1922).

✠

Paroxysmal Hemoglobinuria and Isolation of Substance Causing the Wassermann Reaction.—The author states that signs of syphilis were evident in 30 per cent of the 207 cases of paroxysmal hemoglobinuria he has compiled, and the Wassermann reaction was positive in 95 per cent of the 76 in which this test was applied, and in 2 or 3 cases personally observed. His experiments demonstrated that the hemoglobinuria from chilling is able to induce a positive response to the Wassermann test in the absence of syphilis. He succeeded in isolating from the blood in these hemoglobinuria cases the amboceptor that induces the positive response in the Wassermann test. When added to normal serum, the Wassermann test then applied elicited a positive response. This "chilling amboceptor" seems to combine with the lipoids in a warm environment, but it does not combine with the erythrocytes (and thus induce hemoglobinuria) except at a chilling temperature. He states that his research preceded Wassermann's recent announcement that he had separated the "Wassermann aggregate" into a "Wassermann substance" and a lipoid. The two form a reversible combination. (The "Wassermann substance," Wassermann explains, displays all the properties of an amboceptor and is thus an antibody. This discovery of the amboceptor inducing the Wassermann reaction is the first time that an antibody for lipoids has been isolated. Wassermann ascribes the action of mercury to its effect on the lipoid metabolism of the cells, more than to its action on the spirochetes. He has recently announced further what he calls the "bestaetigungsreaktion," or confirmatory reaction, in syphilis, but has not divulged the technic. He says that he has applied for a patent on it. His communications were published in the *Berliner klinische Wochenschrift*, 58; 195 and 331, 1921).—J. Burmeister, *Zeitsch. klin. Med.*, 92, 19 (1921); *Jour. A. M. A.*, 78, 395 (1922).

✠

Actinomycosis.—Many cases are difficult to diagnose definitely previous to suppuration or sinus formation. Even then if secondary infection is marked or the disease has been of long duration with contraction and induration of the tissues, it may be impossible to come to a definite conclusion by the use of smear, cultural methods, or biopsy. The task is rendered less difficult, however, by the fact that the condition if acute will likely soon soften with suppuration and abscess formation. If chronic it is a slowly spreading process and if untreated a persistently recurring one. At some time it will exhibit an area or areas of softening and abscess formation that will make diagnosis easy. Radiation hastens this process and is occasionally the means of definite determination of the condition. Practically the diagnosis is made very simply by finding little yellow bodies in the purulent discharge from an incised abscess or open sinus, if one remembers to look for them. As is usual in diagnosis generally, there is where failure usually lies. The granules may be caught on the end of a small instrument and placed on a slide. A few drops of water (tap water will do) are placed over and around it; then it is rolled around in the water to wash away the pus. Now by moving it to another area of the slide it is isolated and may be crushed under a cover glass. Examination under the microscope will show a characteristic daisy formation. If the yellow granules are present in the purulent discharge, they are unmistakable. If they are absent one is always in doubt and will pick out particles of inspissated pus or other debris, only to find that they disintegrate in the water on the slide or show only pus and epithelial cells under the microscope. Pathologic examination of tissue prepared from a newly formed nodule excised near the margin of an advancing lesion may show the characteristic granules. The mycelia are gram-positive and acid fast.—Paul A. White, *Ill. Med. Jour.*, 41, 99 (1922).

✠

Wassermann Reactions in Four Hundred and Eighty-Four Supposedly Nonsyphilitic Patients.—The results of 567 Wassermann tests on 474 unselected patients admitted to hospital are reported with some discussion of the findings. In 201 cases of pregnancy, one positive reaction with cord blood reaction corroborated by a positive reaction in the blood of the mother occurred, an incidence of 0.5 per cent. Nine positive reactions in the cord blood alone were obtained. In 283 cases presenting miscellaneous medical and surgical conditions,

forty-seven positive reactions occurred, an incidence of 6 per cent. In the 494 cases of the entire series, approximately 12 per cent of positive reactions were obtained; in twenty of the fifty-seven cases in which the patients reacted positively, there were either clinical or historical findings to corroborate the results of the Wassermann test.—Robert A. Kilduffe, *Arch. Derm. Syph.*, 5, 207 (1922).

✣

Individual Variation as Influencing Rehfuss Fractional Method of Gastric Analysis.—In a critical study of the Rehfuss fractional method of gastric analysis, the following results were obtained in normal and psychotic individuals: Repeated analyses on the same individual within a short period of time, while the physical and mental condition remain practically unchanged, yield different curves. These curves from the same individual vary as much from one another as the differences between the curves of different individuals. Variation in the highest point on curves from the same individual often exceeds differences between the highest points of different individuals. Variation in the total amount of fasting contents from the same individual is often greater than between different individuals. There is an imperfect correlation between the measurment of gastric acidity by the titration method and hydrogen-ion concentration determinations. The latter yields more important information regarding true acidity. This agrees with the work of Shohl. Similar results were obtained when repeated analyses were made on healthy normal individuals showing no gastric symptoms. In only half of the instances was there any correlation between high gastric acidity and low bacterial count. This indicates that another unknown factor is in operation. It is suggested that the bacterial content of the stomach depends on the swallowing of saliva. Bacterial counts, reaction of saliva and observation of amounts swallowed substantiate this, as well as removal of saliva during the analysis. There is little difference in the gastric acidity of patients diagnosed as having dementia praecox and manic-depressive insanity. Subject to the limitations of the investigation, it is indicated that single determinations of gastric acidity by the Rehfuss method are not sufficient on which to base conclusions, because they do not take into consideration individual variation.—Nicholas Kopeloff, *Jour. A. M. A.*, 78, 404 (1922).

A Guinea Pig Rapid Method For the Diagnosis of Tuberculosis.—The specimen in question is first treated with a small quantity of weak alkali, enough to make a thin, rather nonviscid fluid if tenacious sputum is used, for instance. If urine is to be examined, its thoroughly centrifuged sediment is treated with alkali. Alkalis, such as weak antiformin or 3 or 4 per cent sodium hydroxid, are employed. From thirty to sixty minutes later, after one drop of a 1 per cent phenolphthalein solution as an indicator, normal acid is added cautiously until a neutral point is reached. To this practically neutral, sterile solution, dye (gentian violet) is added in approximately 1:3,000 or 1:5,000 dilution. A 20 or 22-gage needle is thrust into the liver of a guinea pig. This is not difficult. The median line very close to the flare of the ribs or a point bisecting the right hypochondrium may be chosen as a site for the injection. Regular respiratory oscillations of the needle indicate that it is lodged in the liver. From 1 to 1.5 c.c. of the dye-colored, neutralized solution is now injected. All manipulations should be done aseptically. Guinea pigs are readily inoculated in this manner; they require no anesthesia and, apparently, show little if any discomfort. From twelve to sixteen days later, they are examined postmortem. Macroscopically there is, as a rule, distinct evidence of tuberculosis in the liver and spleen. If there is any doubt as to the nature of the lesion, a portion of the liver is sectioned and treated with Ziehl-Neelson stain. Tubercle bacilli are then readily observed lying in scattered discrete areas of newly formed cell (endothelial). The method outlined will possess clinical practical value only if it will serve to demonstrate tubercle bacilli in the guinea pig after inoculation from specimens in which tubercle bacilli could not be discovered during prolonged and diligent search; it is, therefore, offered for clinical criticism.—H. R. Miller, *Jour. A. M. A.*, 78, 279 (1922).

✣

Basal Metabolism in Myelogenous Leukemia.—The basal metabolism in myelogenous leukemia bears a relation particularly to the number of immature white cells in the blood stream, regardless of the total leukocytosis. The highest values for the basal metabolism are usually found in cases with very high white counts and many myelocytes, or in cases showing high percentages of myeloblasts. Both of these findings probably signify

great activity of the leukopoietic tissue, and the basal metabolism determinations may be considered as indices of this activity.—A. H. Gunderson, *Boston Med. Surg. Jour.*, 185, 785 (1921); *Jour. A. M. A.*, 78, 306 (1922).

✣

Modification of Fontana's Method for the Demonstration of Spirochaeta Pallida.—This modification concerns the staining stage of Fontana's method and should be carried out as follows: (1) Smears fixed by heat are kept for a few minutes in a solution consisting of formalin 50 c.c., acetic acid 2 c.c., distilled water 150 c.c. (2) After washing with distilled water, pour on the slide a few drops of a mixture of 5 gr. of tannic acid, 3 gr. of carbolic acid, and 100 c.c. of distilled water. Warm on a flame up to boiling point. (3) Wash repeatedly. Pour on the slide pure ammonia; after a few seconds pour it off, and, without washing, allow a 0.5 per cent solution of $AgNO_3$ to pass from one side of the slide over the smear. As soon as this has become brown, the staining is finished and there only remains washing the preparation and drying it over a flame.—G. Stura, *Pathologica*, 13, 98 (1921); *Med. Science*, 5, 439 (1922).

✣

Further Observations on the Blood-Sugar Tolerance Test in Gastro-Intestinal Cancer.—From further study of the blood-sugar tolerance test in malignant as well as in benign diseases of the gastro-intestinal tract, the authors are more fully convinced that this test may be utilized to great advantage as a means of differentiating between these affections, and that while it cannot in any way be considered specific for carcinoma, when taken into consideration with the other clinical evidence it may serve as a valuable aid in diagnosis in obscure cases of carcinoma of the gastro-intestinal tract.—Julius Friedenwald and George H. Grove, *Am. Jour. Med. Sciences*, 163, 33 (1922).

✣

Survival of the Typhus Fever Virus in Aërobic and Anaërobic Culture Media.—In a variety of media kept at 37° C., and from which oxygen is excluded by a petrolatum seal, the typhus virus tends to die rapidly. In the corresponding media under aërobic conditions, the life of the virus is appreciably longer.—Peter K. Olitsky, *Jour. Exp. Med.*, 35, 115 (1922).

Sources of the Antibodies Developing After Repeated Transfusion.—The massive agglutination observable in the shed blood of transfused rabbits, and associated not infrequently with sudden marked blood destruction, has a practical significance in connection with the untoward results of repeated transfusion from donors originally compatible; and it has special theoretical interest because the clumping of the cell is apparently an autoagglutination. The agglutination in its most marked form has been traced to isoantibodies elicited by the presence in the body of corpuscles originally found compatible; and the frequently associated, rapid blood destruction is doubtless of similar origin. Occasionally antibodies develop in the donor bloods during the period of transfusion, but they are so weak as to be negligible. There remain instances of what would seem to be true autoagglutination due to serum bodies induced by the transfusions as a by-product, so to speak, in the manufacture of isoagglutinins. The antigenic relationship between the red cells of different rabbits is so close that normal isoagglutinins became fixed in the cold upon their elaborator's own corpuscles. Agglutinins exist within the red cells of rabbits—as has been claimed by Klein. They are readily demonstrable in watery extracts of the dried corpuscles. Whether similar agglutinins ever exist within human cells remains to be determined. The authors have not found them in the normal corpuscles.—Oswald H. Robertson and Peyton Rous, *Jour. Exp. Med.*, 35, 141 (1922).

✣

Phenol Red and Brom-Cresol Purple as Indicators in the Examination of Feces.—Either phenol red or brom-cresol purple may be used as indicators in the preparation of lactose agar plates for the isolation of members of the typhoid-dysentery group of bacteria from feces. Of the two, brom-cresol purple gives sharper differentiation and is to be preferred. These indicators exercise no restraining influence upon the growth of cultures of the typhoid bacillus or paratyphoid bacillus freshly isolated from the human body, or of laboratory cultures of Bacillus dysenteriae. Both indicators may be successfully employed with brilliant green in the isolation of the typhoid paratyphoid group from feces without sacrificing the restraining activity of the brilliant green upon other bacteria.—Alan M. Chesney, *Jour. Exp. Med.*, 35, 186 (1922).

Hemolysis of Erythrocytes in Contact with Glass.—Washed erythrocytes, in both acid and alkaline solutions, hemolyze more rapidly when allowed to settle out on a clean microscope slide than when kept in suspension. This is also true on slides coated with paraffin, paraffin oil, or vaseline, and on mica surfaces. The presence of as little as 0.1 per cent serum inhibits such contact hemolysis, particularly in alkaline solutions. Contact hemolysis is most marked on slightly soiled glass, and may occur so rapidly with unfixed cells in a hemocytometer that accurate counts are rendered impossible. Erythrocytes are more sticky than normally in acid solutions, and less sticky in alkaline solutions. The increased stickiness of erythrocytes in acid solutions and their larger size during contact hemolysis in acid media provide some experimental evidence for the view that contact hemolysis is to be correlated with an attempt on the part of the corpuscles, or some ingredient of the corpuscle, to spread on the glass after the manner of leucocytes and invertebrate blood cells.—Wallace O. Fenn, *Jour. Exp. Med.*, 35, 115 (1922).

✣

The Reliability of the Wassermann Test as Performed by Different Pathologists.—A considerable degree of uniformity of results of the Wassermann test has been found among five pathologists. Certain differences (chiefly in the case of weakly positive sera) have, however, been noted. Their main source lies in the use of different methods and not in any lack of personal ability or care on the part of the worker. It is believed that the number of these could be greatly reduced by adopting a uniform method of performing the test and by standardizing the details of the method. The supply of a standard antigen and haemolysin to pathologists is recommended.—Joseph W. Bigger, *Jour. of Hygiene*, 20, 383 (1921).

✣

New Organism Akin to Botulinus.—The existence has been demonstrated of an anaërobic organism producing a soluble toxin which affects animals in a manner similar to that of the botulism organism but which fails to be neutralized by polyvalent botulinus antitoxin. Study of the organism, as found in the larvae of the green fly *Lucilia caesar*, indicates that it differs markedly from the botulinus isolated in the United States, and possibly is more nearly related to the European type described by von Ermengem in 1912, though it differs from this in important respects. Tests on laboratory animals by inoculation and by feeding caused death in from 5 to 71 hours. The most striking pathological result was, as in botulism, the congestion of the blood vessels of the brain and meninges. Efforts are being made to produce an antitoxin. The suggestion that the organism of the disease causes limberneck in chickens has not yet been demonstrated.—Report by Ida A. Bengston, U. S. Public Health Service.

✣

On the Direct Isolation of Tubercle Bacilli.—The author describes his experience with the Griffith method for the direct isolation of tubercle bacilli. The simplicity of this method, together with the uniformly successful results, constitutes a distinct advance over other methods at present in use for the direct isolation of tubercle bacilli from sputum. In 55 out of 56 specimens tubercle bacilli were isolated in pure culture. In the method as described by Griffith, equal parts of sputum and 10 per cent antiformin are mixed by shaking or stirring in a test tube, and a loopful of the mixture, after it has become partly liquefied, streaked directly onto suitable media. The most uniformly successful medium was found to be one containing beef liver infusion in the proportion of one part infusion to four parts of egg.—H. W. Lyall, *Amer. Rev. of Tuberculosis*, Jan., 1922, 899 (*D. G.*).

✣

CONVENTIONS, CONFERENCES AND MEETINGS

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May 2-4, American Dermatological Association, Washington, D. C.

May 2-3, Association of American Physicians, Hotel Raleigh, Washington, D. C.

May 3, New York State Association of Public Health Laboratories, Albany, N. Y.

May 3-6, American Physical Education Association, Detroit, Mich.

May 4-6, National Tuberculosis Association, Washington, D. C.

May 8-11, American Society of Mechanical Engineers, spring meeting, Atlanta, Georgia.

May 15-19, American Water Works Association, Bellevue-Stratford, Philadelphia, Pa.

May 16-18, Illinois Medical Society, Mt. Vernon, Ill.

May 22-26, American Medical Association, St. Louis, Mo.

June 21, National Conference of Jewish Social Service, Providence, R. I.

June 22-29, National Conference of Social Work, New Biltmore, Providence, R. I.

June 22-24, American Association for the Advancement of Science, summer meeting, Salt Lake City, Utah.

June 24, Eugenics Research Association, Eugenics Record office, Cold Spring Harbor, L. I.

Biennial Congress on Nursing:

June 26-30, American Nurses' Association, Seattle, Wash.

June 26-30, National League for Nursing Education, Seattle, Wash.

June 26-31, National Organization for Public Health Nursing, Seattle, Wash.

July 4-10, National Education Association, Hotel Plaza, Boston, Mass.

HEALTH NUGGETS

Germs, says the U. S. Public Health Service, are usually a hand to mouth affair. Better wash up.

Professor Raymond Pearl has discovered that the suddenness and the destructiveness of the first flu epidemic coincides significantly with the normal death-rate from heart diseases in many American cities. It does not so coincide with the death-rate of any other important disorder. The inference is obvious.

✠

That rats desert a sinking ship is proverbial. But it now appears that they berth in life boats, as if in preparation for sinking. Of 100 rats destroyed by fumigation on a steamship arriving at San Francisco, says the U. S. Public Health Service, 89 were killed in the four life boats.

✠

You need fresh air—day and night.

Don't be afraid of "night air." It is the only air there is at night.

Well kept alleys pay better dividends than well kept cemeteries.

Good health means good business. Bad health is bad business.

Disease prevention is even more important than fire prevention.

Tuberculosis kills more persons every year than any other preventable disease.

Coughs and sneezes spread diseases.

We've whipped the Germans. Now let's whip the germs.

I took a bath today—did you?

I scrubbed my teeth today—did you?

A rattlesnake warns you before it strikes—disease germs don't.

Don't cough in my face. I'd rather take a chance with a bullet.

Beware of the dastardly "D's"—Dirt, Despair, Disease, Dampness, Death.

Avoid patent medicines.

Open bedroom windows will help you keep healthy.

The promiscuous "spitter" is a menace.

One fly with its filthy feet can kill an entire family.

Preventable disease is not merely accidental. It is due to criminal carelessness.

If you give a preventable disease to someone and that someone dies, what are you?

Wealth without health is a mockery.

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Vol. XII MAY, 1922 No. 5

OCCUPATIONAL THERAPY

JOHN W. BRANNAN, M.D.

President, Board of Trustees, Bellevue and Allied Hospitals, New York City

Read before the Industrial Hygiene Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 18, 1921.

THE name "occupational therapy" is comparatively new, a matter of recent years, but the idea itself goes back at least to the time of Benjamin Rush, for we find him in 1797 writing to the managers of the Pennsylvania Hospital advising that certain kinds of labor be given to the patients, as it would be for their benefit, and again in 1813 he advocates work as a therapeutic measure. From this time on some kind of employment is recommended by many writers, but usually only for patients suffering from mental derangement.

According to Dunton, the therapeutic application of work was rather lost sight of from 1860 to 1890, following the Civil War, but was taken up again in the nineties, and after the beginning of this century the subject was attacked in a more scientific way than had formerly been done. For many years the beneficial effects of occupation have been demonstrated in the hospitals for the insane, but it remained for the Great War to teach us its value in general and special hospitals, of all kinds. Looking backward, however, we can see that, like Dr. Campbell, the director of the Red Cross Institute for the Blind in Baltimore, we have been making use of occupational therapy without knowing it. Dr. Campbell said at the convention of the National Society for the Promotion of Occupational Therapy that he was ignorant of occupational therapy as such, but that he had been unconsciously practicing it for years. He advises the teaching of the use of the typewriter to all blind people, and says that they can be well trained in the giving of massage. So in many of our general hospitals, the nurses have put the patients, both men and women, at work making surgical dressings. For years, in going through the wards of hospitals with which I am connected in New York, I have noticed the patients so occupied, and in my occasional visits to the private hospitals of the city, I saw that the patients were similarly employed. On questioning the patients I have uniformly been told by them that they liked the work, as it made the time pass more quickly, and they were also glad to make some return to the nurses for their kind treatment. In putting occupational therapy upon a more formal and thorough basis by means of trained teachers in the various handicrafts, we are, therefore, simply extending a practice already in force.

When I consented a short time ago



WOMEN'S PSYCHOPATHIC WARD.

1. M. was a mental defective, very noisy and boisterous, often quarreled with the patients. She enjoyed working on the loom and was very much quieter when she did so.

2. Miss G. was a young Bohemian who had read quite a little psychoanalysis. She was well educated and knew just enough about the mind to be sure there must be something the matter with her. She worried so about it that in reality she did become irrational. She was in the ward a long time, did a lot of nice work and finally left very much improved.

3. R. was a little paralyzed girl whose mind was also affected. She simply loved to work and used to hobble into the workroom with a big smile every morning.

4. Mrs. S. used to talk incessantly in a whining voice about her children; the only way to keep her quiet even for a few minutes was to give her something to do; she probably would have had to be sent to a disturbed ward if she had not had the work, for she would have disturbed the other patients so.

5. R. was a young girl whose parents were dead. Her aunts put her in an institution when she was little. She had been sent from place to place because there was no one to take her out. She was all right mentally, a most willing and helpful patient.

6. P. was a mental defective. While M. was there she was noisy and boisterous and used to help M. throw notes to the men out of the window, but when M. left and she used to go around with R., she was as quiet and helpful as she could be.

7. Mrs. T.'s mind had been affected as a result of a paralytic stroke. She was as simple as a child; was much pleased when given work to do. When she would be the last to receive her work she would say she was afraid "you had forgotten me."

8. Mrs. P. was terribly depressed. She thought she had committed some terrible sin that had ruined her daughter's life. She kept saying, "Oh, my beautiful daughter, I didn't mean to do it." When she did some work it stopped her groaning and mumbling to herself.

9. M. C. was a prospective mother who had grown nervous about herself and had fears for her baby. She walked up and down the room working and used to say that the work kept her mind from her troubles.

to present a paper on Occupational Therapy at this meeting, I did not realize how little time there was in which to prepare it. I was much interested in this new form of physical therapeutics, as it had been introduced into Bellevue Hospital some two years before by the Visiting Committee of the New York State

Charities Aid Association, and had gradually been extended into the various services of the hospital. I have had some opportunity to observe it in operation, and I am going to tell how it works in a general civil hospital.

We have five trained teachers or reconstruction aides, all paid from funds provided by the Visiting Committee mentioned above. The work was started in the psychopathic and neurological wards, then extended to the surgical and tuberculosis wards, and recently into a few of the medical wards. At present writing some 280 patients, about 23 per cent of all the patients in the hospital, are receiving instruction in the wards and in the workshop, with a total of 3,163 since October 1, 1920.

During the past two weeks I have made a rather hurried review of the recent literature of occupational therapy, and have been surprised by the large number of articles on the subject, written by men and women qualified by personal experience to speak with authority. One notes the enthusiasm and intense conviction of the writers, whether they be physicians or surgeons, or the directors in charge of the work. They show the spirit of crusaders, striving to convince all of the value of the new therapy. Year by year the methods of treatment are more clearly and scientifically defined.

The work should be under the direction of the medical staff and should receive its enthusiastic support. This is not always easy to secure, especially in a general hospital, writes Canby Robinson, and often has to be won by practical demonstration. The needs and capabilities of each individual patient should be carefully studied, and the kind and amount of work prescribed by the physician. Complete records should be kept, with daily notes of the progress of the case. The interest and support of the superintendent are also essential to secure coöperation with the other activities of the hospital. The sympathy of the



NEUROLOGICAL WARD: A BED CASE MAKING A REED TRAY

Mrs. M., hysteria, two months on ward. Disease developed after shock of sister's death, partially paralyzing legs of patient. Became interested in making a basket for her little girl; then made trays and was most industrious. Thought the occupational work a great mental help and was discharged cured.



NEUROLOGICAL WORKSHOP

1. Mrs. H. Ataxia paraplegia, two months on ward; nice old German woman, patent medicine victim, very weak, hands and body partially paralyzed. Knitted many wash-cloths while lying in bed, and was made happier through occupation and the thought of being useful.

2. Louise S. Encephalitis, two months on ward. Young girl whom disease had weakened mentally and physically. Ambition developed slowly after being persuaded to make cord bags and baskets. After this she worked on small tables and was much interested and better mentally when discharged.

3. Margaret McA. Hysteria, duration 6 months. A pretty little Irish girl; age 20 years. Had all the symptoms of hysteria; could not walk, feed herself, do anything except raise her arms in the air. We left a wooden toy and some sand paper in her lap and she gave it a rub now and then. After a week or so she quieted down enough to try crude drawing and from that got interested making patterns for bags. Next she knotted innumerable macramé bags, a task requiring considerable precision. Then after much persuasion we seated her at the rug loom (for she could not walk), but she forgot all about that when some threads became tangled at the back of the machine one day and climbed around to fix them, holding on to the loom at first and then regularly walking. She was discharged cured.

4. C. M. Sclerosis, 3 months. Although only 28 years old, he will probably never be able to lead a normal life again; spends his days in a wheel chair; always eager to work, as he was only too glad to have an interest in life. During his stay at Bellevue, he became an expert basket-maker and later, on transfer to Blackwell's Island, hoped to continue the same type of occupational work there.

5. C. T. Amyotrophic lateral sclerosis, 4 months on ward. German-trained painter and woodworker; 51 years old. Unable to work at his trade since disease developed. Steady attendant in workshop doing gilded and carved boxes. One of the innumerable cases who are glad to be occupied and kept from brooding. Discharged to Montefiore Home.

nurses is also important and is generally easily secured, as they find the work of the occupation teachers lightens their own. The same is true of the social service workers. The success of occupational therapy is, of course, largely dependent upon the tact and good judgment and thorough training of the teachers. Fortunately, there are now a number of schools in various cities of the country

where a complete course of instruction is provided. It is well that such is the case, in view of the fact that the medical profession as a whole has manifested but little interest in this form of physical therapy. Probably this is because it has not been sufficiently brought to the attention of physicians.

It has been suggested that the medical colleges should be asked to add to their courses in therapeutics "The Science of Healing by an Occupation," as it has been called by Miss Upham, and it would seem to be well within the province of this Association to make this request of the colleges. I shall myself ask the attending physicians and surgeons at Bellevue to call the attention of their students to the work of the reconstruction aides in the wards and workshop, and to the great benefit derived by the patients from it. Some writers refer to the lack of coöperation of the house staff with the aides. There was the same difficulty



SURGICAL WARD

1. G. S. Osteomyelitis of leg. He worked in the curative shop till he had an operation. As soon as he was able, he wished something to do in bed. He worked steadily for weeks, making a number of knotted bags and baskets. He was much interested in the work.

2. J. M. Osteomyelitis of leg. Bed patient, about three months in hospital. He began with sand-papering and some wood carving. Worked steadily and with great interest. As soon as he finished one article wished material for another without delay. He made about eight knotted bags, wove two jute bags, and carved two boxes. He wished he could have had this work a year ago when he was in the hospital.

3. S. D. Hernia. On his first coming into the ward he was given a box to sand-paper, and he worked with great zeal as long as he was able.

4. J. D. Empyema. This patient worked down in the curative workshop. But not content with that, he wished work to do on the ward also. He worked steadily on knotted bags and baskets, and accomplished as much on the ward as he did in the shop.



SURGICAL WARD

John B. is a lumberman, 47 years old, with a fractured femur. For nearly three months he has lain like this, flat on his back, and, until a month ago, when the occupational therapy aide on his ward took an interest in his case, he had nothing whatever to do to make the long hours pass, except to read, a pastime that did not come very naturally to the active lumberman. He can make no movements below the waist, but his arms and hands and brain were eager for work. He has shown the greatest interest in making knotted bags, and has already finished several of them. As the patient is unable to raise his knee to make a support for his work, he himself devised an arrangement by which the frame on which the bag is made is attached to some of the pulleys on the so-called "Balkan frame," which regulate the weights on his broken leg. In this way the frame is kept steady, and both hands are free for the actual work. The doctors say that it will be at least a year before he can stand. When he is released from the Balkan frame an effort will be made to give him further vocational training.

when social service was first introduced into Bellevue fifteen years ago, but the staff soon learned to adapt themselves to the new element in the wards, and helped the workers with the patients. They say now that they could not get along without them. There is no doubt that in a short time they will welcome the occupation aides.

I have given in some detail the modern requirements of occupational therapy because they were new to me and probably are to some in this audience. These requirements are certainly not met in all respects in Bellevue Hospital. Very few members of the medical board have as yet become interested in the work. There have been few written prescriptions, only verbal or general directions by the physicians. No special records have been kept, nor daily notes of the progress made by each case. A beginning has, however, been made to remedy these defects, though it is a difficult matter because of



MEDICAL WARD

1. Mrs. W., asthma, one month in Bellevue. Mrs. W. is a nice old soul of about sixty-five who had been a milliner in her youth, and although harassed by bad coughing spells, was anxious for some pretty work. In the middle of lining a basket, she was transferred to the surgical ward for a slight operation—removal of a polypus growth from one nostril. Back she came to the medical ward, still clinging to the basket. It was finished just in time for the picture. In a day or two Mrs. W. expects to go up to Burke Foundation for convalescence.

2. Elizabeth W., arthritis, six weeks in hospital. Mrs. W. is a wheel-chair case about thirty-five years old. Although her eyes troubled her, a child's toy caught her fancy, and she is sewing these little tabbit bags for a set of ball and jacks, planning Easter presents for two little nieces. She finds that the work lessens the stiffness of her fingers.

3. Petrina B., cardiac, one month in hospital. Petrina is a young colored woman, about thirty, much bored with lying in bed. She called out for something to do as the aide was passing by. She started a toy cat, but had to give up for a week when headaches overpowered her. She was allowed to be up for the first time the day the picture was taken and is shown putting the eyes on her kitty.

our small clerical force and the large number of patients to be treated. In spite of the above conditions, the results of occupational therapy in Bellevue are quite as striking as those reported by other hospitals, whether special or general. Dr. George O'Hanlon, the medical superintendent, has given his strong support to the new department of the hospital and has greatly helped to make it a success. Among the other members of the staff whom I wish to mention as firm believers in the new therapy are Alexander Lambert, Foster Kennedy, Menas S. Gregory, John Hartwell and Reginald Sayre. We also have a special committee, composed of James K. Paulding, a former trustee, several of the present trustees, the above-mentioned medical men, Mrs. Cornelius Sullivan, and last and most important, Miss Marion R. Taber, who introduced occupational therapy into the hospital in the name of the State Charities Aid Association.

We have great need of a medical director to coördinate the department of occupational therapy with the other forms of physiotherapy with which the hospital is fairly well provided, such as hydrotherapy, electrotherapy, the x-ray and the various kinds of reconstruction



MEDICAL WARD

1. Josephine F., cardiac, three months in hospital. Josephine is a Spanish woman of about thirty who does not speak a word of English. We had to use sign language, until Mrs. E., her neighbor, came to the ward. However, she understood what a crochet hook was for and edged three doilies and concocted a gay powder-puff case for herself. She has just been recovering from a relapse and is trying basketry for a change. The picture shows her on her second basket.

2. Mrs. E., arthritis, one month. Despite the baby, Mrs. E., a Porto Rican about twenty-five, wanted to make something. She likes easy and dainty work, and has been crocheting wool leaves and sewing velvet flowers when the little brown baby is not demanding her attention.

apparatus for the treatment of the surgical cases. No patient is now allowed to leave the hospital with a stiff joint resulting from the immobilization of a fracture. The manipulation of the joint is begun early, while the patient is still in bed. If the patient cannot be kept until the functional use of the joint is complete, he is instructed to return as an outpatient for further treatment. We can all remember the time, not many years ago, when fracture cases were discharged as cured as soon as good union was obtained, even though the neighboring joint was more or less anchylosed from long disuse. Happily that time has passed, never to return.

Now as to the results of occupational therapy, as seen in a large general hospital. I have already said that they corresponded to those reported in other hospitals. The patients who have been given some form of interesting occupation are not only happier, but recover more rapidly and are in a better condition to resume their work when they leave the hospital. Dr. Lambert, who saw much of the effects of occupational therapy while in the army in France as well as in Bellevue since his return, estimates that the period of hospitalization is lessened by as much as one third in many cases. Dr. Gregory, with his long experience in the handling of psychopathic patients, attributes to this therapeutic agency the recovery of a large number of cases that formerly would have been committed to hospitals for the insane. Dr. Foster Kennedy, in charge of the neurological wards, states that the occupational education has been of the greatest therapeutic value to the patients and has vastly improved their morale and, therefore, their health. The surgeons also testify to the effect of the exercises in restoring function to stiffened



A General View of the Surgical Workshop. Note the Faces of the Children.



THE CHILDREN'S HOUR IN THE SURGICAL WORKSHOP

Infantile paralysis, fracture cases, osteomyelitis, empyema, etc. The little girls in the background are sewing clothes for their dolls. The little boys are making toys. Braces make no difference to them when it comes to the toyshop. And the painting they adore. "Oh! what a mess, but how I love it," Lewis says.

joints and flabby muscles and in raising the spirits of the patients by giving them something to do.

I have myself noticed the greatly changed aspect of the wards. In the women's psychopathic ward, the patients, instead of sitting apart, each one brooding or occupied with her own thoughts, are gathered in groups pleasantly interested not only each in her own work, but also showing a friendly interest in the work of the others. In passing through the men's neurological ward a few days ago I noticed a group of men engaged, some in making baskets, others at a loom. On returning an hour or so later during the noon intermission, I saw three of them sitting idle. On asking them if they liked the work, they all replied that they did, and one said that they wished they could have it on Saturdays and Sundays. I suggested that they might play cards or dominoes and asked if they had any dominoes. They answered that they had, and they were well enough for the evening, but that by day they preferred the baskets or weaving. Last week in the Presbyterian Hospital I spoke to two young women, each of whom had made a pretty basket and asked them how they liked the work, and one said, it was "grand" and the other "wonderful."

Brief histories of a number of cases from the Bellevue wards which have been benefited by occupational therapy are given in connection with the illustrations.

In concluding this hastily prepared and rather fragmentary paper, I wish to state

that in my judgment the introduction of occupational therapy into Bellevue Hospital is the most important event in the history of the hospital since social service was introduced by Miss Wadley fifteen years ago. Social service was established by private funds, but was afterwards taken over by the city, and I believe that the city authorities will soon be convinced that it is their duty to contribute at least in part to the maintenance of occupational therapy.

□

ANEMIA IN PROFESSIONAL DONORS: A STUDY IN A NEW PHASE OF PUBLIC HEALTH

L. W. FAMULENER, M.D.

(*From the Pathological Laboratory, St. Luke's Hospital, F. C. Wood, M.D., Director*)

Read before the Laboratory Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 15, 1921.

THE transfusion of blood from normal, healthy human donors into the circulatory system of patients suffering from certain diseased conditions, such as anemia, etc., is recognized by the medical profession as a valuable therapeutic procedure in many instances. Since transfusion methods have been placed upon a firm basis through laboratory tests and improved operative procedure, blood transfusions have continued to rise in favor, and are now quite commonly given in our hospitals, and even in private practice—frequently with most gratifying results. Coincident with the development of this branch of therapy the demand for blood donors has become increasingly great, until a group of men, attracted by the monetary returns and the ease of existence which such a life seemed to offer, have become professional or semi-professional donors. Many of these individuals have been wholly, or in part, dependent upon the sale of their blood as a means of livelihood, some for a period of five to seven years. As a result of repeated bleedings, some of these men show no apparent ill effects, some a slight anemia, while a third group shows extreme secondary anemia calling for medical attention. This last group of professional donors presents a new public-health problem, one which merits serious attention from the public-health authorities.

During the past two years over twenty professional donors who have offered their blood for transfusion purposes at St. Luke's Hospital have shown a hemoglobin content at 85 per cent, or below. In some extreme instances it has been as low as 43 per cent (1); 48 per cent (1); 52 per cent (1); 54 per cent (1); 57 per cent (1), and upwards. The lowest red blood cell count recorded has heen 2,000,000, with 57 per cent hemoglobin, although in general the red blood cell count has not been relatively as low as the hemoglobin content. Some of these donors presented a more marked anemia than some of the patients to whom a transfusion was considered advisable.

The responsibility for these conditions may be more or less charged to the donor, the clinician, and to the laboratory worker. The donor may overexploit his blood-regenerating powers for financial gain, and he may also lead an irregular life. The clinician may withdraw too much blood from the donor at one time, or at too short intervals; he may also be remiss in not having a full knowledge of the blood condition of the donor. The

laboratory worker, who groups the blood of the patient and donor, does the cross-tests between the two as well as the Wassermann reaction, may neglect to do a red blood cell count and a hemoglobin determination.

Since the value of blood transfusions as a therapeutic means is fully established, it is important that the professional donor be recognized as an essential adjunct, and that means be taken to conserve those who come forward and offer themselves in this capacity. The anemic professional donor loses his therapeutic and often his economic value, as he cannot contribute blood indefinitely, and may hardly have the strength to provide for his material wants by physical labor; therefore his case becomes a social as well as a medical problem. Obviously, it is the first duty of the medical man to see that these anemic individuals are given proper medical advice and treatment. Equally important is his duty to prevent the occurrence of a similar condition in the normal healthy donor. The latter may be greatly aided by requiring the physician or surgeon who performs the transfusion to subject the donor to a careful physical examination, and to have a full laboratory blood examination immediately before taking the blood (including red blood cell count, hemoglobin determination, grouping and cross-tests of blood, and the Wassermann test). It might be advisable that professional donors be registered by public-health boards, examined and officially certified as to fitness for such usage. Such boards exercise control over our foods, drugs, therapeutic sera, and other public-health matters; therefore, such power might well be extended over this phase of public health. Also the physician or surgeon might be required to report the transfusions he makes, with essential data relative to patient and donor. In conjunction with the latter the following facts should be given: the Wassermann reaction, red blood cell count, percentage of hemoglobin before taking the blood, and the amount of blood withdrawn. The question of blood transfusion and qualified donors is of growing importance. It is one which merits the serious attention of the public-health authorities, and on their part possibly the framing of regulations by which proper control might be exercised over professional donors and those who are doing blood transfusions.

Acknowledgments are due to the staff of the Pathological Laboratory of St. Luke's Hospital for assistance in carrying out the tests.

□

SOME THINGS A LIVE A. P. H. A. MEMBER CAN DO

1. Spread the gospel of public health in his own community.

2. Keep professionally up to date by reading the JOURNAL and other Association publications.

3. Offer constructive suggestions to the officers of the Association for the improvement of its services.

4. Attend the annual meetings. The next one will be held at Cleveland, Ohio, October 16-19, 1922.

5. Perform promptly and cheerfully tasks he is called on to undertake for the Association.

6. Get at least one new member each year.

7. Be on the job 100% of the time.

THE MORTALITY OF THE TWO SEXES IN THE FIRST YEAR OF LIFE WITH SPECIAL REFERENCE TO WHOOPING COUGH

S. J. Holmes, Ph.D.
Professor of Zoology, University of California

FOR nearly all the diseases that affect infancy and childhood, the death-rate of boys is greater than that of girls. A survey of the various causes of death upon which data are given in the United States Mortality Statistics shows that with the somewhat doubtful exception of gonococcus infection, there is but one cause of death, namely whooping cough, which removes more girls than boys in the first few years of life. The ratio of male to female deaths in children less than one year of age varies with different causes of death and also with the general severity of the death-rate, but it generally lies between 120 and 130 males to 100 females. A general survey of the relation between the severity of the infant death-rate and the ratio of male deaths to female deaths, the results of which are being published elsewhere, shows that where infant mortality is low, the ratio of male to female deaths in the first year of life is high and vice versa.

The statistics of countries in which infant mortality has been reduced all show a parallel increase in the ratio of male to female deaths. The ratio of male to female deaths among infants of native born parents in the United States is higher than it is among the infants of the foreign born where the general infant death-rate is higher. The same ratio is markedly higher for the children of whites than for the children of negroes, and in every country it is higher for legitimate than for illegitimate children, as we might expect from the higher death-rate of the latter class. Where conditions are the most favorable for the rearing of infants, where what may be called the environmental causes of death are, so far as possible, removed, there we find the highest ratio of male to female deaths in the first year of life. If we follow infancy through subsequent years of life, the mortality of the two sexes becomes more nearly equal, although for most age periods, with the occasional exception of some years in the child-bearing period, the females have a somewhat greater expectancy of life than the males. If we take the sex mortality within the first year, we find that the ratio of the male to female deaths increases as we approach the period of birth, and it is among very young infants that the death-rate is notoriously the highest. Apparently we have here something of a paradox. As we pass back to periods in the history of the individual in which the death-rate becomes higher, the ratio of male deaths to female deaths *increases*. Whereas, when we pass to places or social classes in which the infant death-rate is high, the ratio of male deaths to female deaths *decreases*.

We have little accurate information regarding the antenatal death-rate, but there is a good deal of evidence from the records of abortions furnished by Rauber, Körösi, Bertillon and Prinzing which indicates that the proportion of male foetuses increases, the earlier the period at which the abortion occurred. Whatever the initial sex ratio, or the sex ratio of fertilized ova may be, (it has been variously estimated by different writers[1]) it is evident that from the earliest period in which the sex of human embryos can be distinguished to the most advanced

1. One of the lowest estimates is the recent one of A. H. Schultz (Contributions to Embryology, Carnegie Institution's Publication No. 279, 1921), who places the ratio at 108.74 males to 100 females. Auerbach believes that it should be placed at 125 males to 100 females. (Das wahre Geschlechtsverhältnis des Menschen. Archiv. f. Rassen- und Gesellschafts-Biol. 9, 10-17, 1912.)

periods of old age there is a discrimination against the male sex.

These facts indicate that the male is inferior to the female in constitutional vigor or vitality. The differences between the two sexes in constitutional vigor are apparently great in embryonic life, but tend to decrease during at least several years after birth. We may then understand why, although the death-rate is high for very young infants, the proportion of male deaths is also high. Death may be regarded as, in general, a function of two sets of factors, the internal or constitutional, and the external or environmental. In different cases now the one and now the other set of factors plays the predominant rôle. By eliminating, so far as possible, the environmental causes of death as we do in groups with a very low infant mortality, we may safely assume that the infants who die in spite of the best surroundings are eliminated in greater degree upon the basis of constitutional weakness or defect. Hence more of the weaker, or male sex die. The factors which vary with locality or social status are of course the environmental causes of death. On the other hand, the factors which vary with time, i. e., the periods of individual development, are internal or constitutional. As we pass back in time, the relative potency of the constitutional causes of death increases and the weaker sex suffers the greater loss.

As the male-female death ratio from most causes of death is higher in the first than in the subsequent years, and is generally higher in the first and second months than in subsequent months, it occurred to me that it would be of interest to follow, through a series of years, the sex incidence of deaths from whooping cough, which stands out as the only important cause of death which regularly carries off more female than male infants. Abundant material for the purpose is furnished by the United States Mortality Statistics which tabulate separately the deaths of the two sexes from various diseases and for a number of age groups. There are available the data of the census of 1890, and the number of deaths from whooping cough which have occurred each year since 1900, when the first of the volume on mortality statistics was published.

Table 1 gives the absolute numbers and death ratios of boys and girls dying of whooping cough in 1890 and since 1900. In the first year of life, although there is a consistent preponderance of female deaths for each of the several years reported, the ratio of male to female deaths is relatively low, on the average 108 to 100. In the second year of life the ratio shoots up to 114 and it continues to rise, though more slowly, during the next few years. Also the numbers of deaths rapidly fall off after early childhood. It is interesting to note that the ratio of female to male deaths continues high even in advanced years. The data on deaths from whooping cough in England and Wales, as shown by the reports of the Registrar General, and also data from various parts of continental Europe show much the same trend.

Why whooping cough is more fatal to girls than to boys is not entirely certain. Dr. F. C. Crum, in a valuable paper on "A Statistical Study of Whooping Cough,"[2] has shown that girls are more liable to contract the disease than boys, so that a part of the higher mortality of females from this cause is the result of their higher morbidity. The data on the sex mortality of those who contract the disease are meager, but the figures quoted by Crum from the studies of Laing and Hay on the mortality from whooping cough in Aberdeen indicate that the case mortality was about the same (4.7 per cent) for both sexes. The Aberdeen data, which are not very extensive, are anomalous in one respect since they show a greater number of male than female deaths under one year, (1,256 cases, 165 or 13.1 per cent being fatal in males, and

2. AM. JOUR. PUBLIC HEALTH, Vol. v, 994-1017,

TABLE I

DEATHS FROM WHOOPING COUGH IN THE UNITED STATES CLASSIFIED ACCORDING TO AGE AND SEX

Ages at Death

Dates	All Ages		0—1		1 plus		2 plus		3 plus		4 plus		5—9		10—14		15—19		20—24		25 plus		Unknown	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1890	3,821	4,611	2,161	2,346	791	995	365	479	155	264	92	126	167	259	34	54	11	14	8	12	23	34	14	28
1900	1,691	2,028	942	1,031	417	472	153	217	86	135	32	60	40	82	2	10	3	2	0	1	5	12	2	6
1901	1,334	1,707	578	916	315	399	118	166	49	94	44	48	51	67	2	7	2	2	0	2	5	4	0	2
1902	1,707	2,147	1,005	1,147	371	475	147	217	67	120	43	59	55	95	3	9	2	5	3	2	7	17	4	2
1903	2,374	2,797	1,386	1,418	532	704	222	300	87	150	52	86	76	114	7	8	2	3	1	2	5	8	4	5
1904	967	1,216	566	618	222	312	83	130	41	60	16	34	31	47	1	9	0	2	0	1	5	2	2	1
1905	1,624	1,975	952	1,045	375	491	143	200	70	95	36	54	38	73	5	8	0	0	1	0	4	7	0	2
1906	2,824	3,500	1,720	1,898	610	831	233	327	104	179	62	103	76	133	8	10	1	3	3	2	4	12	2	2
1907	2,273	2,583	1,358	1,339	511	661	196	272	96	138	43	65	48	89	7	13	2	6	2	1	10	3	0	2
1908	2,243	2,726	1,316	1,445	522	635	195	303	91	138	51	76	55	104	2	11	1	3	3	8	6	5	1	0
1909	2,264	2,642	1,362	1,432	504	650	175	257	82	121	40	63	77	92	8	12	3	3	0	2	13	10	0	0
1910	2,769	3,377	1,625	1,720	589	824	247	383	120	177	70	103	91	137	10	7	4	6	4	3	7	18	2	0
1911	3,112	3,570	1,796	1,891	726	885	254	344	133	184	60	90	104	139	12	7	2	11	4	5	9	11	3	3
1912	2,531	3,088	1,508	1,693	591	698	186	322	96	130	49	84	81	121	10	13	2	5	0	3	8	18	0	1
1913	2,837	3,495	1,629	1,813	665	851	220	376	118	183	66	86	103	143	15	20	4	1	1	2	15	14	1	6
1914	3,094	3,772	1,894	2,005	659	890	230	353	131	168	51	99	97	151	15	22	2	7	0	4	15	21	0	2
1915	2,540	2,881	1,521	1,598	575	716	194	236	87	126	53	65	87	106	8	13	1	5	1	2	13	13	0	1
1916	3,314	3,970	1,917	2,092	800	1,048	272	376	123	180	71	76	99	146	15	19	2	11	0	4	13	17	2	1
1917	3,635	4,202	2,067	2,183	847	1,096	318	427	141	187	83	105	138	146	18	31	8	7	3	5	11	12	1	3
1918	6,192	7,536	3,148	3,414	1,517	1,913	576	881	334	458	193	285	312	455	48	64	19	8	8	9	31	34	7	14
	53,146	63,823	30,451	33,044	11,039	15,546	4,527	6,535	2,111	3,287	1,056	1,667	1,826	2,699	230	347	71	104	42	70	209	272	45	81
Ratio of female to male deaths	120.1		108.5		140.8		144.4		155.7		157.8		147.2		150.9		146.4		166.6		130.1		180.	

1,236 cases, 148 or 11.9 per cent being fatal in females). If the fatality of the diseases among those who contract it is about the same for both sexes, it indicates that the case mortality for females is greater relatively to that for males than it is for most other diseases. Data from Vienna furnished by Dr. S. Rosenfeld and based on 13,186 cases with 853 deaths showed a ratio of cases of 126 females to 100 males, and a ratio of deaths of 129 females to 100 males. Since the ratio of deaths is higher than the ratio of cases it is probable that the disease is more fatal to females than to males. This conclusion is supported also by the data furnished by Dr. P. Luttinger[3] who finds that out of 8,520 reported cases of whooping cough in New York City there were 4,702 or 55.12 per cent girls and 3,818 or 44.87 per cent boys. In the total number of deaths (17,066) reported from Manhattan and Bronx there were 9,514, or 55.8 per cent girls and 7,532, or 44.1 per cent boys.

It has often been stated that the differences in the laryngeal apparatus of the two sexes is connected with the peculiar sex mortality of this disease. The larger size and peculiar form of the male larynx constitutes one of man's most conspicuous secondary sexual characters, and since whooping cough attacks this structure along with other parts of the respiratory passages it is natural to attribute the peculiar sex mortality of whooping cough to this circumstance. The fact that the deaths resulting from whooping cough are due to complications with pneumonia or bronchitis, both of which carry off many more boys than girls, presents a difficulty in the way of this interpretation, although perhaps not necessarily a fatal one. It might be maintained that since the laryngeal structure of boys and girls differs least in early infancy the relatively low ratio of male to female deaths at this time may thus be accounted for. This factor might produce a slight effect, but it does not, I believe, afford the true explanation of the situation. The greatest sexual difference in the structure of the larynx appears about the period of puberty, but the change in the relative death-rate of the two sexes at this time is not particularly marked, and is not nearly so great as it is between the first and the second years of life. The differences in the larynx of the two sexes that develop in the first two years of life are relatively slight, and afford no adequate explanation of the marked differences in the sex mortality of whooping cough that occur between infants under one year of age and those between one and two.

The most probable explanation of this phenomenon is, I believe, to be found in changes in constitutional factors that occur with age. We have seen that as we approach the period of birth the deaths of the two sexes from whooping cough become more nearly equal. In other words, as we go back in individual life *relatively* more males die of whooping cough just as relatively more males die of other causes. In this respect whooping cough is no exception to the rule that as we pass from childhood back to early infancy the ratio of male to female deaths increases. The increase in the male death-rate as we pass from the second to the first year of life is a phenomenon quite parallel to what occurs in other diseases, and is to be attributed to the same cause, i. e., the relatively low constitutional vigor of the male in early life. The change in sex mortality of whooping cough is probably due, therefore, not to changes in the larynx or other possible factors standing in a peculiar relation to whooping cough, but to changes in the relative vigor or power of resistance of the two sexes.

3. Luttinger, P. The Epidemiology of Pertussis. *Am. Jour. Dis. Children*, Vol. 12, 290-315, 1916.

REPORT OF COMMITTEE ON COLD STORAGE

Read before the Food and Drugs Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 15, 1921.

YOUR Committee in past years has dealt with the general application of cold storage to the conservation of various food products; but it proposes in this report to deal wholly with cold storage in relation to fruits.

As we know, the first application of cold storage was to the ocean transportation of meats, and the experience thus gained soon extended to the meat-packing industry, which has reached such enormous proportions. If we recall the past history of rural America we will find that the greatest hope of the housewife was to utilize the few fruits and vegetables in their season, and to preserve through drying such as were readily thus treated; but not until within quite recent years has the canning of fruits and vegetables reached wide proportions.

It is, however, to cold storage that we must ever look for the maintenance of fresh fruit in its natural state, and the maintenance of those delicate flavors and vitamine compounds which give the fruits and vegetables their definite nutritive and antiscorbutic values. Hence, we are forced for the development of our problem to turn to the natural constitution and organic composition of fruits to learn why cold is essential to maintain them in their prime condition.

To know what we wish to accomplish, it is necessary to inquire into the chemical composition of fruit. A fruit may be described as a living organism, which from the time the flower is fertilized until growth is complete illustrates one of the most interesting of vital organic processes. The changes of growth and development do not, however, stop with the mature fruit, since if exposed to heat and sunlight on the tree, the oxidizing or ripening process goes on; but, further, on picking the fruit the devitalized tissues undergo chemical changes affecting the sugar and starch products of the tissues which include polysaccharides, gums and cellulose.

Formerly this process was called spontaneous ripening, and involves the contents of the starch cells and the fruit juices. These various contents of fruits and vegetables are built up through the chemical changes activated by the rays of sunlight absorbed by the chlorophyll, which converts certain rays into a much higher and more condensed phase of energy, whether electric, lumic, or thermic. The changes take place through adsorption or surface tension of the molecules, and illustrate the relative rapidity with which definite energies are working to effect molecular changes in diverse substances. The pigment of the chlorophyll acts as an optical and chemical sensitizer, and light energy is employed to cause a reaction between the carbonic acid and water present, resulting in the formation of formaldehyde and hydrogen-peroxide. These are both unstable and the formaldehyde is rapidly polymerized and the hydrogen-peroxide is split into oxygen and water by the enzyme present. In this reaction the light simply acts as a rapidly alternating electric field, or a kind of electrolysis occurs.

By this process the sugars, gums and cellulose are variously formed in differing amounts. Such then is the nature of the fruit, and of those decomposition changes which break down tissues, as well as build tissues up from simple into more complex compounds.

We have thus briefly described the life processes, which go on during the growth and maturing of fruit, and may now refer to those outer influences, which under certain conditions bring about decay in picked fruit especially. Just as the cells of starch are nourished through the fruit juices from the sugars, so a whole group

of microscopic plants live as parasites on the surface of plants and send their threads of the surface mycelium into the interior of the fruit through wounds of the skin, bruises, worm holes of the coddling moth, or ruptures of the tissues from stems pulled off. These plants belong to the family of fungi, molds or mildews, all of which grow in moisture and heat with the absence of sunlight. Naturally many fruits have their special enemies. Thus the strawberry is attacked by *Rhizopus nigricans,* which breaks up the soft watery tissues, making them fluid and causing a box of fruit to shrink to half its size. It is a black-grey mold, which sends out white hairlike filaments or threads. The grape is attacked by the *oidium,* a powdery mold, the stone fruits by the brown rot *Sclerotina cinerea,* which attacks the ripe soft tissues, and apples by several fungi, the chief being the liquefying mold *Penecillium glaucum,* and the dry mold *Cephalotheca roseum* or pink rot, which appears as spreading pink rot, causing the tissues to shrivel from the absorption of their contents by the threads of the *mycelium,* and *Eurotium herbarum,* which attacks especially damp fruit.

This resumé of the factors underlying the growth and maturing of fruits, as well as of the conditions which lead to their decay, has seemed necessary to comprehend the task to be undertaken in order to keep fruit through the successive seasons and so maintain the supply and secure a steady market. The complaint has been made that cold storage has kept up the price of fruit; but the enormous losses in the fruit districts from decay illustrate how poorly developed still are the local methods for handling the fruits of different sections of the continent. To give a single instance, I had brought to me at the end of September several apples of an autumn variety, which had been shipped by freight only 150 miles, had been ten days on the car as a carload, and were practically a total loss, although carefully picked, and barreled in the orchard. There was apparently pink rot, generally spread over the healthy skin. It is only necessary to recall the warm mellow days of September, the damp air, the dew remaining until noon, and the dew falling early, to understand how apples picked at noon temperatures of 80° F., placed in a barrel with their heat stored within would, after a few hours, be surrounded with a saturated air, since the barrels are at once headed up and usually left in the orchard until shipped. The buyer paid $5.30 per barrel F. O. B., and the freight was $1.60. Of course, there was the usual dispute, and in this case the buyer won, for he went directly to the orchard, and found other barrels picked at the same time in the same state of decay. Thus the grower has lost all his season's work, the buyer his profit, and the consumer the fruit for his table.

Probably the most illustrative example of the spoiling of fruit, as it is ordinarily handled in the north, is in the case of strawberries and of peaches. Analysis shows that these fruits have little more than 10 per cent of solids, and speaking generally, the keeping qualities of the sweeter fruits depend upon the amount of solids present. The strawberry further suffers from the fact that it is a ground fruit, and owing to the ground becoming heated on a hot day, even to 150° F., the picked berries attain nearly this temperature, and unless at once cooled, or if left in a closed car or other place will, through evaporation, speedily become surrounded with a saturated air and all the conditions are present for certain and rapid decay. The "whiskers" on the strawberries ought to be enough to condemn every one who has been engaged in their handling from the grower to the managers of the fruit market. The two illustrations point to the same conditions, and suggest the same means of prevention.

Those who have read the annual reports of the Committee on Cold Storage will recall the insistence upon prompt precooling of all organic products in-

tended for long transport and storage. Much observation has convinced us that apart from lack of knowledge on the part of the fruit growers, there has been a similar lack of the conditions of conservation on the part of handlers, associated with an unspoken conviction that they can buy to better advantage, and control the prices when they know the grower is largely helpless in their hands. Such facts as that the strawberry crop of Illinois decreased between 1900 and 1910 from 24,000,000 to about 13,000,000 boxes are probably to be explained by the crude handling of fruit rather than from outside competition, the real explanation being that the southern fruit growers were forced to learn the value of refrigeration, and the railways had to supply it in order to develop the trade.

It is obvious, when we realize the dominant part played by heat in molecular activity resulting in biochemical changes, that to reduce the conditions under which enzymes and bacteria function must be the obvious means of preserving fruit tissues from destructive changes. The cold of winter will preserve foods for months; the cold from melting ice and salt will give temperatures below freezing; while the ice machine has today enabled us to obtain low temperatures in the most economical manner and to keep fruit in cold storage for many months by simply preventing biochemical changes in tissues.

Your Committee, after a careful survey of the facts, is convinced that the chief cause of the very slow advance, which has been made in the development of cold storages and precooling at points of local fruit-growing is the fact that in part of the season growers of fruit in the north have in the past been able to get along in a kind of way by the old methods. This was equally true of the citrus fruit-grower of California, but it was not until long experience had taught him that the eastern market was his only hope, and that there was only one way by which he could capture it, that under the wise guidance of Mr. C. Harold Powell, the California Fruit Exchange was founded. A prosperity unlooked for has since come to that section, and to the grape growers of the northern section. Precooling of the fruit and organized coöperative selling are now the universal practices, and such methods are being developed elsewhere.

Though less noticed and less dramatic, there has been going on in the older eastern states a growing appreciation of the advantages of cold storage near the places of production of apples, peaches and grapes. Apparently, however, the progress was primarily among the fruit handlers of New York, who found that it was cheaper to store in the northern counties, and that their fruit kept better where it was cooler. This has led to the growers gradually developing amongst themselves great cold storages, as in the five counties along Lake Ontario. The last official statement of the director of markets of New York state was to the effect that in the five Lake Ontario counties there were in operation 71 cold storages. The director of markets of Massachusetts states that on the first of December last there were in cold storage two-thirds of the late apple crop of the state, and that a similar practice exists in Connecticut.

The corollary to the development of local cold storage is the increase of cold storage on the railways and steamships. The American Association of Ice and Refrigeration has shown its deep interest in this phase of the question by creating a Perishable Freight Conservation Bureau, operating under the supervision of its Committee on Railway and Steamship Refrigeration. This Bureau is organized with its secretary in Chicago, and issues from time to time bulletins containing much useful and interesting information on the cold storage problem. It has recently pointed to the increase of perishable fruit shipments from 326,160 cars in 1916 to 554,588 in 1919, or about 40 per cent. It also gives good advice

to shippers in the matter of loading and handling fruit. Its bulletin of June 27, 1921, states that several thousand refrigerator cars with ice bunkers are being turned into regular service by their owners. That the shipping from northern Atlantic ports is poorly equipped is learned from the largest Transatlantic steamship company which has only 250,000 cubic feet of cold storage per month available, or room for only about 30,000 barrels.

The problem of how great advances can still be made in saving the fruit, which it has taken so much trouble to grow, is engaging the attention of both state and federal governments, and a steady propaganda is carried on by departments of agriculture in the matter of growing fruit. In other directions, methods of local picking and packing have been illustrated; but there has been a lack of definite encouragement in establishing and organizing local cold storages, and a lack of coördinated handling of the growers' fruit. These seem essential to the education of the grower to the real need for care in not only growing, but in handling the fruit, picking, boxing, hauling, loading and unloading. If he can be brought to appreciate the full meaning of the organic processes by which decay takes place, and then be able to take advantage of local facilities for preventing it, a few years will show a still greater increase of the growing, the transport and the consumption of fruit, one of the chief needs in both nutrition and health.

PETER H. BRYCE, M. D.,
Chairman.
JOSEPH F. NICKERSON,
L. M. TOLMAN,
PROF. C. M. HILLIARD,
PROF. J. E. RUSH.

REPORT OF COMMITTEE ON INSTITUTION AND HOSPITAL STATISTICS

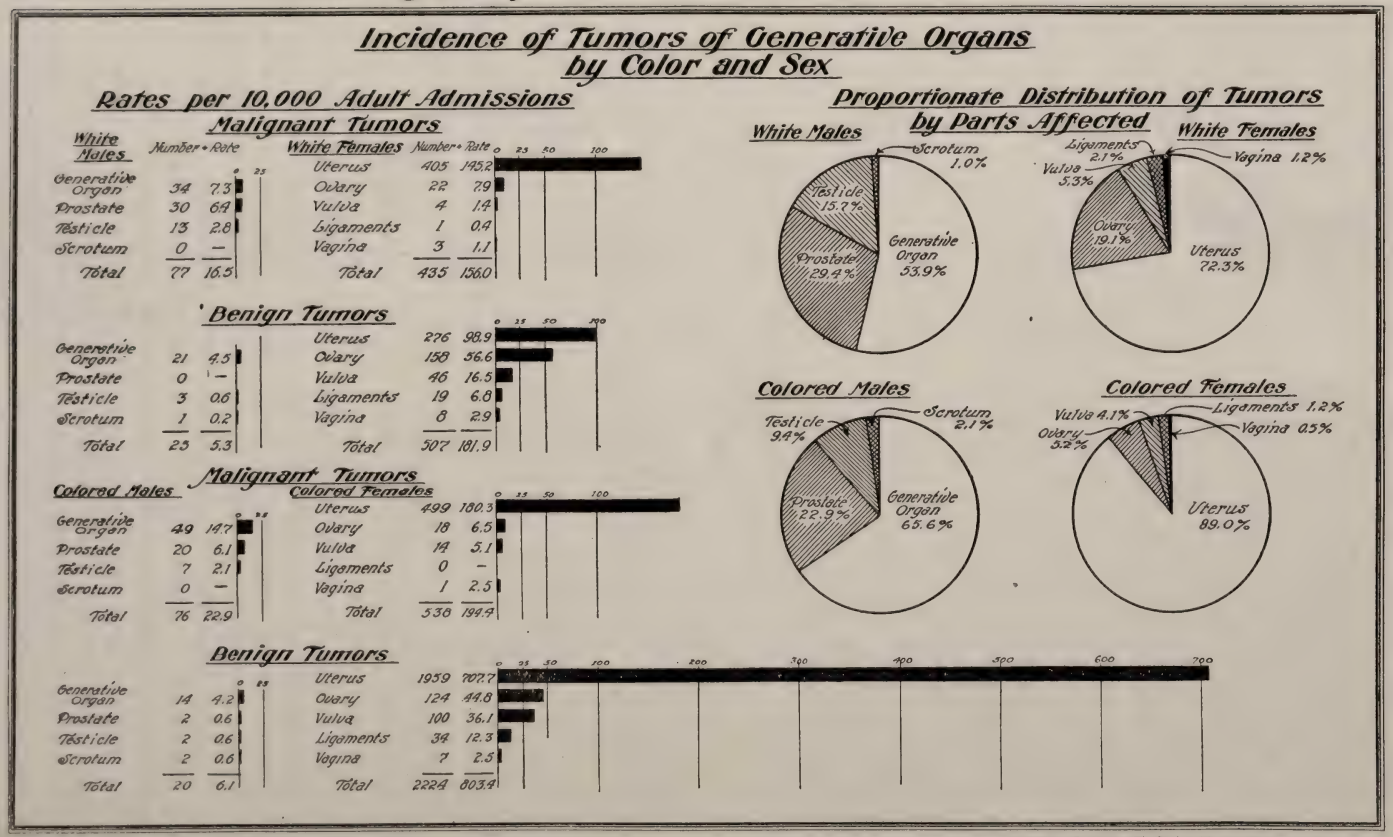
Read before the Vital Statistics Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 18, 1921.

ON account of my leaving for South America tomorrow* it will, to my regret, not be possible for me to attend the meetings of the American Public Health Association, nor shall I be able to present a report of my Committee on Institution and Hospital Statistics. It has been physically impossible for me to give this matter the required consideration, deeply interested as I have been and always shall be in the broader plans of the Association, which aim at the standardization and scientific correlation, as well as better classification of the institutional experience of our American institutions. My experience has led me to believe that it would be best to have someone appointed in my place as chairman of this Committee who would represent, possibly, the experience in a practical way. I realize the conflicting viewpoint between those who are concerned chiefly with the economics of hospital administration and those who are chiefly interested in the medical and surgical results of hospital experience. It is the latter subject which has given me particular concern, but my efforts in this direction, beyond my contribution to *Johns Hopkins Bulletin* on the Johns Hopkins medical statistics, and my analysis of the New Orleans Charity Hospital Statistics regarding tumors, etc., and my brief presentation of a few other institutional results, have been largely negative.

I had hoped that I would find it pos-

*The statement published herewith was written as a letter to Dr. W. F. Petrie, secretary of the Vital Statistics Section, dated May 31, 1921.

Benign and Malignant Tumors
Charity Hospital, New Orleans, La., 1910-1919

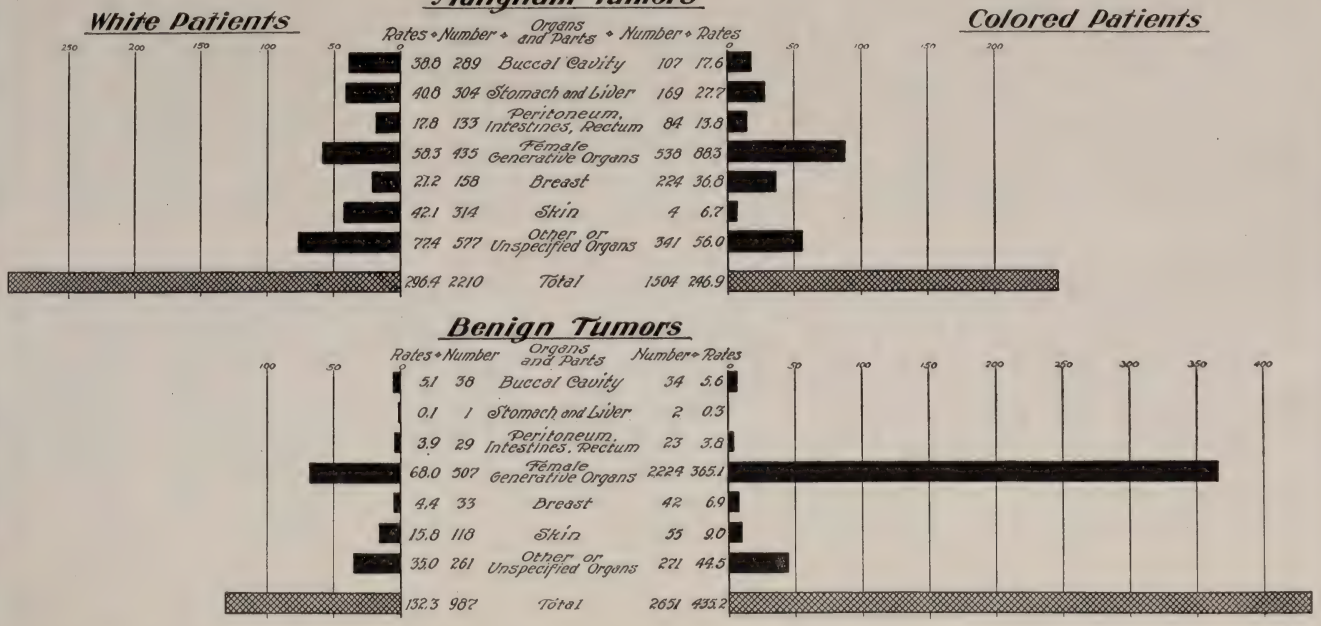


Statistician's Department, The Prudential Insurance Company of America

Benign and Malignant Tumors
New Orleans Charity Hospital, 1910-1919

Incidence of Tumors of Organs and Parts, by Color

Rates per 10,000 Adult Admissions



Statistician's Department, The Prudential Insurance Company of America

sible to bring together a group of men both practically and theoretically interested in institutional statistics, particularly on the medical and surgical side. As a single illustration, I may refer to the admirable discussion of statistics of neoplasms from surgical service, by A. P. Stout, M. D., and A. P. Phillips, contributed to the Medical and Surgical Report of the Presbyterian Hospital in the City of New York, under date of October, 1918. It is such monographic studies that ultimately form the foundation of a reconstructed statistical service which, by its clearness and obvious usefulness, admits of no controversy or substantial opposition. My analysis of the tumor statistics of the Charity Hospital of New Orleans emphasizes the practical value of a careful reëxamination of crude statistics precisely coördinated to the total admissions, or perhaps to the total population from which they are derived. As an illustration of the value of this method I attach hereto as part of my report the tumor charts, including both benign and malignant tumors, as originally presented to the Orleans Parish Medical Society, and the Mississippi State Medical Association.

In closing, I may repeat what I have so often said, that in the light of my extensive experience there is no statistical material more worthy of critical consideration than the experience of our hospitals and allied institutions. At the same time, I may repeat the statement frequently made that there is no more lamentable evidence of apathy and neglect in the use of this material than the crude manner in which the statistics are presented. They are, almost without exception, in such form as to be practically useless. In the brief report of the Orange Memorial Hospital for 1915 I laid down the minimum requirements as approved by our Committee which should govern in the presentation of essential hospital medical and surgical experience data. At the same time, I may point out that in my report on the Johns Hopkins Hospital statistics I laid down what may be considered the maximum requirements. But, one fundamental principle should never be lost sight of, although it is practically always completely ignored, and that is that the experience should be given separately for each sex and should never be combined. Likewise, the experience by causes or conditions should give in the same columns the number of admissions or the number of discharges as well as the number of deaths. Only by this means can the fatality rate be properly arrived at, whereas the usual nomenclature of "cured" or "improved," etc., is more or less doubtful and as a rule of little intrinsic value.

FREDERICK L. HOFFMAN,
Chairman.

Method of Plating Anaërobes.—A simple and convenient modification of the Sellards method of securing anaërobic growth, which has been used successfully by the writer, depends upon the use of burning phosphorus to remove the oxygen from the culture apparatus.

Melted agar is poured into a tumbler to the depth of an inch, inoculated heavily, and allowed to solidify. A crystallizing dish is then partially filled with paraffin oil or melted paraffin, and a small piece of phosphorus is floated on the surface by means of a card board float. After the phosphorus has been ignited, the tumbler containing the inoculated agar is quickly inverted over the float. As the oxygen is removed from the space within the glass, the paraffin rises in the tumbler one-fifth of its height, therefore care must be taken to use sufficient paraffin that a small quantity will remain in the crystallizing dish that is not drawn up into the glass. The "plate" is now incubated at room temperature.

In a heavily inoculated culture of Bacillus botulinus, a good surface growth was obtained by this method.

After discarding the cultures, the paraffin oil may be resterilized and used repeatedly. —Henrietta Lisk, Dept. of Bacteriology, School of Hygiene and Public Health, Johns Hopkins University.

CREMATION VERSUS BURIAL—A PLEA FOR MORE SANITARY AND MORE ECONOMICAL DISPOSITION OF OUR DEAD

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THE history of modern cremation in America dates back to the time when Henry Lawrence of South Carolina, distinguished patriot and president of the Continental Congress, wrote his will which contained the remarkable words, "My body is too good to be eaten by worms." He directed that after his death his body should be burned, and in minute details told how this was to be done and how the ashes were to be disposed of. His body was subjected to cremation in 1792.

Neither space nor time will permit me to trace in detail the interesting history and methods of cremation in European and Asiatic countries. There are in the Old Testament two specific instances of cremation: First, Samuel 31:12 and Amos 6:10. The custom of burning the dead obtained among the Greeks, Romans, Hindoos, and the Aztec race of Mexico. When the Roman Empire was at its summit of power, cremation was in special favor, particularly among the wealthy class. The practice of cremation, so general among the Greeks and Romans of antiquity, fell into disuse as these nations became converts to Christianity. The burial of Christ and the belief of his followers in a material resurrection from the grave doubtless caused the discontinuance of cremation.

In modern Europe the revival of cremation as a method of disposing of the dead appeared during the eventful period of the French Revolution, near the end of the eighteenth century. During the last fifty years, in Italy, France, Germany, and England, there has been a movement, more or less general, towards the adoption of cremation. The ideas held by its advocates may be briefly summarized in the language of a friendly writer as follows:

> If cremation, an ancient and noble procedure, replace the present dangerous and repulsive mode of putrefaction by burial, then there would be a gain in the respect for the dead, as well as in morality and hygiene. The present system of burying the dead is bad and unsatisfactory, from every point of view; it is an attack of the dead, on the rights of the living, and repugnant to civilization and the feelings of humanity. On the contrary, cremation is a funeral rite that is consonant with morals and religion, and comports with hygiene and domestic economy.[1]

The first really scientific cremation took place in Italy in a furnace invented by Professor Brunnetti, of Padua, in 1869. The year 1874 saw a number of cremations in Breslau and Dresden. Since then the movement has grown gradually and today there exist crematories in nearly all civilized countries excepting Russia and Turkey. Our country has some thirty odd crematories.

While I myself have been for years an ardent advocate of cremation on economic and sanitary as well as on ethical grounds, I feel that one man's opinion does not count in such a tremendous question. To obtain the opinion of leading sanitarians and religious and ethical teachers, I addressed a letter of inquiry to some fifty of our most distinguished sanitarians and clergymen. Most of them replied and I desire to express my grateful appreciation to them all for their cordiality and helpfulness.

To the question

Do you believe that cremation must be considered a more sanitary and more economic disposition of our dead and better for the community at large than interment?

1. L. C. Lane, M. D., LL.D., "Cremation"; *Pacific Med. Jour.*, January, 1891.

the following sanitarians gave a decided affirmative answer:

Dr. John F. Anderson, New Brunswick, N. J.
Dr. Peter H. Bryce, Ottawa, Can.
Dr. Charles V. Craster, Health Officer, Newark, N. J.
Dr. S. H. Durgin, Duxbury, Mass.
Dr. W. A. Evans, Health Department, Chicago Tribune, Chicago, Ill.
Dr. C. Lincoln Furbush, Director Dept. of Public Health, Philadelphia, Pa.
Dr. Charles J. Hastings, Medical Officer of Health, Toronto, Canada.
Dr. Rudolph Hering, Consulting Engineer, Montclair, N. J.
Dr. J. N. Hurty, Secretary State Board of Health, Indianapolis, Ind.
Dr. L. M. Powers, Health Commissioner, Los Angeles, Cal.
Dr. M. P. Ravenel, University of Missouri, Columbia, Mo.
Dr. John Dill Robertson, Commissioner of Health, Chicago, Ill.
Dr. H. L. Rockwood, Commissioner of Health, Cleveland, Ohio.
Dr. George C. Ruhland, Commissioner of Health, Milwaukee, Wis.
Dr. Stephen Smith, New York City.
Dr. Henry F. Vaughan, Commissioner of Health, Detroit, Mich.
Dr. W. C. Fowler, Health Officer, Washington, D. C.
Dr. Richard H. Lewis, Raleigh, N. C.
Dr. Charles O. Probst, Columbus, Ohio.
Dr. M. C. Woodruff, Assistant Health Commissioner, St. Louis, Mo.

Dr. Royal S. Copeland, Health Commissioner, New York City, wrote: "It is to be pointed out that the disposal of the dead is a matter in which sentiment and sensibilities play so vital a part, that it would be foolhardy and dangerous for anyone to interfere with established customs unless he could present valid, scientific objections to such customs. Until this is done, no matter how ardently some may believe in cremation, it would seem to be the part of wisdom to convert public opinion to this idea through the process of education. Surely, the matter is not at the present moment one of very great urgency."

Dr. Francis E. Fronczak, Health Commissioner, Buffalo, N. Y., qualified his answer by saying: "It is obviously more sanitary because eliminative, but under present day methods of preparation and burial, no insanitation results. It is more economical.

The following religious and ethical teachers answered this question also in the affirmative:

Rev. Harry Emerson Fosdick, First Presbyterian Church, New York.
Rev. Newell Dwight Hillis, D. D., Plymouth Church, Brooklyn, N. Y.
Rev. Charles E. Jefferson, D. D., Broadway Tabernacle Church, New York.
Rev. Alfred W. Martin, Society of Ethical Culture, New York.
Rev. Charles Francis Potter, West Side Unitarian Church, New York.
Rev. J. B. Remensnyder, D. D. St. James Lutheran Church, New York.
Rev. Herbert Shipman, D. D., Suffragan Bishop, Church of the Heavenly Rest, New York.
Rev. William L. Sullivan, All Souls Unitarian Church, New York.
Rev. Stephen S. Wise, D.D., Free Synagogue, New York.

The following answered in the negative:

His Eminence, Archbishop Hayes, New York.
Dr. Gardner T. Swarts, Providence, R. I.

Uncertain or non-committal.

Lee K. Frankel, Ph.D., Third Vice-Pres., Metropolitan Life Ins. Co., New York.
Dr. W. S. Rankin, State Health Officer, Raleigh, N. C.
Dr. Wm. C. Woodward, Health Commissioner, Boston, Mass.
Monsignor M. J. Lavelle, New York.

Dr. Gardner T. Swarts answered that he thought cremation more sanitary but not more economical. Uncertain what to answer to this question were Dr. Lee K. Frankel, third vice-president of the Metropolitan Life Insurance Company; Dr. W. S. Rankin, State Health Officer, Raleigh, N. C., and Dr. Wm. C. Woodward, Health Commissioner, Boston, Mass. The Rt. Rev. Bishop Wm. T. Manning of the Diocese of New York

wrote that owing to great pressure of work it was impossible for him to write anything on the question just now. A similar answer was received from the Rev. John Roach Straton, D. D., Calvary Baptist Church, New York.

In order to get a more specific statement as to the possibility of infection arising from interred bodies, I asked a number of leading sanitarians and health officers to reply to the following question:

Do you believe in the possibility of infection arising from interred bodies when death was caused by a contagious disease?

I received answers in the affirmative from:

Dr. Peter H. Bryce, Ottawa, Can.
Dr. S. H. Durgin, Duxbusy, Mass.
Dr. H. L. Rockwood, Cleveland, Ohio.

"Possible, but not probable," from:

Dr. C. Lincoln Furbush, Philadelphia, Pa.
Dr. Charles J. Hastings, Toronto, Can.
Dr. W. S. Rankin, Raleigh, N. C.
Dr. M. P. Ravenel, Columbia, Mo.
Dr. George C. Ruhland, Milwaukee, Wis.
Dr. Henry F. Vaughan, Detroit, Mich.
Dr. Wm. C. Woodward, Boston, Mass.
Dr. M. C. Woodruff, St. Louis Mo.

Specifying the possibility of infection from spore-bearing diseases in general:

Dr. W. A. Evans, Chicago, Ill.

The following gentlemen qualified their answers to this question:

Dr. Royal S. Copeland: "There has been some evidence though extremely scant to indicate that there is a possible source of danger of infection arising from the interred bodies of persons who have died from an acute communicable disease. While the scant evidence which I have been able to find and which relates to experiences in California, Michigan, Massachusetts, Long Island, etc., is extremely fragmentary and uncertain, there seems to be a possibility of infection of this type, and until laboratory workers, by painstaking and thorough research, establish the truth or falsity of this conception, we should be extremely guarded and not dismiss this as a possibility. The decaying organic material is in all likelihood an excellent culture medium. A great deal would depend on the location of a cemetery and its relation to adjacent water supplies."

Dr. W. C. Fowler: "I have never known of infection being traced to such a source. I think, however, that danger from this source might arise if the burial of a body, dead from infectious disease, should be made in a locality that would be likely to contaminate a water supply, whether public or private. Other than this, I think the danger is remote."

Dr. Francis E. Fronczak: "If the body has been prepared for burial in the proper manner, and the casket sealed, there is no liability of infection. Infection is by contact, and pathogenic organisms would under the circumstances be inactive."

Dr. Charles O. Probst: "Possible if disinterred."

Replying as not believing in infection arising from interred bodies when death was caused by a contagious disease, were the following:

Dr. John P. Anderson, New Brunswick, N. J.
Dr. Rudolph Hering, Montclair, N. J.
Dr. J. N. Hurty, Indianapolis, Ind.
Dr. Charles H. Jones, Commissioner of Health, Baltimore, Md.
Dr. L. M. Powers, Los Angeles, Cal.
Dr. John Dill Robertson, Chicago, Ill.
Dr. Stephen Smith, New York.
Dr. Henry F. Vaughan, Detroit, Mich.
Dr. Richard H. Lewis, Raleigh, N. C.

Being particularly interested in tuberculosis, I was not at all surprised to read that according to the experiments of Galtier and Gardner the bacillus of tuberculosis belongs to the group of microörganisms which resist putrefaction for years and has been found to be brought up by earthworms. Lortet and Despeigner say:

Earthworms are capable of ingesting and ejecting the tubercle bacilli without the microorganisms losing their virulence. The worms swallow earthy matters and after separating the digestible or serviceable portion they eject the remainder in little coils or heaps at the mouth of their burrows. In dry weather the worm descends to a considerable depth and brings up to the surface the particles which it ejects. It would thus seem that

even the deeper burial of the bodies is no guarantee that living infectious microörganisms will not be brought to the surface.

According to Pasteur's experiments in regard to the etiology of anthrax, the earthworm is responsible for bringing the *Bacillus anthracis* out of the ground. Neither flood nor disinterment is necessary, therefore, for pathogenic microorganisms to come to the surface, and it would seem that cattle which might chance to pasture in the vicinity of spots where the bodies of men or animals who have died of anthrax or tuberculosis have been buried are in danger of ingesting the pathogenic microörganisms. The carcasses of tuberculous cows are frequently buried and not very deeply, and so are the carcasses of sheep dead from anthrax, and it does not seem to me unlikely that tuberculosis among herds of cattle and anthrax among flocks of sheep are often propagated in this way.

That there is, at least in the minds of many sanitarians belonging to this Association, a certain apprehension that the body of an individual who died of an infectious disease harbors organisms which might be injurious to the living, would seem evident from a report adopted on "Transportation and Disposal of the Dead" (Transact. Amer. Pub. Health Ass'n., Vol. xxiii, 1897, p. 454). In this report Dr. Charles O. Probst quotes as Rule 8 the following:

Every disinterred body dead from any disease or cause shall be treated as infectious or dangerous to the public health, and must not be accepted for transportation unless said removal has been approved by the State or Provincial Board of Health having jurisdiction where such body is to be disinterred, and the consent of the health authorities of the locality to which the corpse is consigned, has first been obtained; and all such disinterred remains must be enclosed in a hermetically sealed (soldered) zinc, tin, or copper-lined coffin or box. Bodies deposited in receiving vaults will be treated and considered the same as buried bodies.

The question

Are you of the opinion that in many instances, particularly among the poorer classes, the ordinary funeral and burial is far too expensive?

was answered by a decided affirmative by:

Dr. W. A. Evans, Chicago, Ill.
Dr. Lee K. Frankel, New York.
Dr. C. Lincoln Furbush, Philadelphia, Pa.
Dr. Rudolph Hering, Montclair, N. J.
Dr. J. N. Hurty, Indianapolis, Ind.
Dr. L. M. Powers, Los Angeles, Cal.
Dr. W. S. Rankin, Raleigh, N. C.
Dr. George C. Ruhland, Milwaukee, Wis.
Dr. Stephen Smith, New York.
Dr. Gardner T. Swarts, Providence, R. I.
Dr. W. C. Fowler, Washington, D. C.
Dr. Francis E. Fronczak, Buffalo, N. Y.
Dr. Richard H. Lewis, Raleigh, N. C.
Dr. Charles O. Probst, Columbus, Ohio.

The religious and ethical teachers replying to this question in the affirmative were:

Rev. Harry Emerson Fosdick.
Rev. Newell Dwight Hillis.
Rev. Charles E. Jefferson.
Rev. Alfred W. Martin.
Rev. Charles Francis Potter.
Rt. Rev. Herbert Shipman.
Rev. William L. Sullivan.
Rev. Dr. Stephen Wise.

Some of the sanitarians qualified their answers to this question, and in order to be accurate I must quote their replies briefly:

Dr. Charles H. Jones, Baltimore: "I do not know."

Dr. Charles J. Hastings, Toronto: "In my judgment, it is little short of a calamity the enormous amount of money that is squandered on the burial of our dead."

Dr. William C. Woodward, Boston: "I am convinced that such is the case. I am not sure, however, that under existing conditions, cremation will help the matter. Commonly, I believe, even when a body is to be cremated it is enclosed in a more or less expensive casket, and the casket is cremated with the body. Charges for cremation are high. The ashes must be disposed of, many looking upon

the burial of such ashes as the best way of disposing of them. Under such circumstances, cremation merely adds to the general cost of disposing of the dead, and does not reduce it. With a revision of our cremation procedure, economy should be possible.

"It may interest you to inquire into the cremation record in the District of Columbia. There, a municipal crematory is maintained. The normal charge for cremating a body is (or was, when I was Health Commissioner there) twenty-five dollars, and in event of that fee imposing hardship upon a person desiring to have the remains of any friend or relative cremated, it was reduced. All bodies that had to be disposed of at public expense, except in the cases of persons who requested otherwise, were cremated. The change from earth burial to cremation, or what might be called the official method of disposing of the dead, was effected without trouble of any kind."

Dr. John Dill Robertson, Chicago: "True of all cases."

Dr. Henry F. Vaughan, Detroit: "It is doubtless true that the ordinary funeral and burial is too expensive for certain of the poor classes. I feel, however, that present regulations which are generally enforced, governing the conduct of funerals, are based on hypotheses which are now obsolete and that the simplification of such regulations would do much to relieve people of this excessive burden. In the case of paupers, of course the community is always at hand to assist in meeting the expenses."

Dr. Charles V. Craster, Newark: "I feel that the ordinary funeral in many instances is too expensive but whether cremation would lower such cost I am inclined to doubt."

Dr. John P. Anderson, New Brunswick: "This is probably so; but it is an economic question, not a public-health one."

Dr. L. M. Powers, Los Angeles: "The undertakers are organized into a combination or trust that compels an expense not only to the poor but to others."

Dr. J. N. Hurty: "I am decidedly of the opinion that the modern funeral is a great drawback and hindrance to those families who live on the narrow edge. The poorer classes strain every nerve to make a funeral as showy as possible, and the love of ostentation, which is not a noble character, is practiced among them. I know of many instances where poor families have bankrupted themselves, set themselves back to such a degree they never could get squarely on their feet again, by having the funeral elaborate."

Dr. Royal S. Copeland: "There is no question at all that in many instances, among the poorer classes, the ordinary funeral and burial is far too expensive, but it is doubtful whether cremation would lessen this expense."

Dr. M. C. Woodruff: "I am of the opinion that funeral and burial expenses are entirely too high not only among the poor class, but among every other class."

Dr. Lee K. Frankel: "It is not always the fault of the undertaker. . . . I believe that if undertaking of funerals were put on a modern business basis it would be possible to furnish funerals considerably cheaper than they are at the present time."

Dr. Rudolph Hering: "I am of the opinion that the ordinary funeral and burial expenses as now practiced are certainly far too expensive for the poorer classes, and there should be a method of disposing of the dead which, while safe, would not require a large expense."

Dr. Stephen Smith says: "I am of the opinion that in many instances, particularly among the poorer classes, the ordinary funeral and burial is far too expensive."

Dr. M. P. Ravenel answered my question regarding this with, "Yes, decidedly so."

Some of the clergymen were particularly strong in their opinion regarding this matter.

Rev. Dr. William L. Sullivan: "Funeral expense is frightful all round. I think funerals are at present a scandalous exploiting of the people's necessity."

Rev. Dr. Stephen S. Wise: "I believe that the ordinary funeral and burial are far too expensive, especially for people of small means."

Rev. Harry Emerson Fosdick gave virtually the same answer.

Rev. Newell Dwight Hillis: "I have for many years been an advocate of cremation, partly because it is the more sanitary method of burial, and partly in the interest of economy for the poor. The families of rich men are increasingly inclined toward expensive monuments, costing from ten to twenty thousand dollars, and from every viewpoint this

is a bad example for the working classes who often dwell close to poverty and want."

To the question

In your opinion, would it be a wise policy to consecrate the many acres of land required for burial of the dead to the living for habitations or recreation grounds?

I received a definite affirmative answer from the following sanitarians:

Drs. Craster, Durgin, Furbush, Hering, Powers, Ravenel, Ruhland.

The following ministers answered with a decided affirmative:

Rev. Henry Emerson Fosdick, Rev. Charles E. Jefferson, Rev. Charles F. Potter.

The following gentlemen qualified their answers:

Rt. Rev. Herbert Shipman: "It seems to me that in this question there are two matters involved. I thoroughly believe in the acquiring and using of land, so far as practicable, for the recreation of our crowded neighborhoods. I am also inclined to believe that large cemeteries in populated districts are not altogether sanitary. On the other hand, it would doubtless offend the sensibilities of a good many people should the cemeteries now in use be made over into grounds for recreation."

Rev. Dr. Stephen S. Wise: "I should wish to have an opportunity to think about it further."

Rev. Dr. William L. Sullivan: "The giving over of so much land for cemeteries is serious in cities, but not in country places. I think we should not enforce cremation by law, however, on this ground of economy of land-space unless we are obliged to do so by pressure of population—and such necessity is far off."

Dr. W. A. Evans: "Yes; Lincoln Park in Chicago owes its origin to just this policy."

Dr. Stephen Smith: "The moral effect would be bad."

Dr. John Dill Robertson: "I would not care to advocate such course as a general proposition but would call attention to the hot weather use of Lincoln Park, Chicago, as an example of the benefits which may accrue to a nearby crowded tenement district by such a procedure."

Dr. Wm. C. Woodward: "The human animal is, I believe, the only animal that preserves and venerates its dead. By this and by the fact that the human animal is a worshipping animal the human animal is distinguished from the beast. It is well it should remain so. There may be particular instances now, and there may come a time when there may be other particular instances, when the use of land for cemeteries is of itself injurious to the living because such use will deprive the living of land that should be available for habitations or recreation grounds. When such particular cases arise, they should be dealt with as individual instances. I do not believe that any broad general rule can be laid down beyond this."

Dr. Charles J. Hastings: "In answering this question, I find it difficult myself to get away from the tradition of the past. We have so long been accustomed to looking upon a burial ground as the last resting place of all that is mortal of the blessed dead. Practically, it would be more in the interests of public health if these burial grounds could be utilized for recreation purposes."

Dr. Henry F. Vaughan: "I hardly feel that it would be a wise policy to consecrate the land used for the burial of the dead to recreation or park purposes. I hardly feel that our country has become so densely populated that it is necessary to resort to such a method. I believe thoroughly in recreation and park grounds, but there is still room for both. To my mind, the existence of a burial ground furthers the respect that the living have for the dead."

Dr. John F. Anderson: "This is an economic question and not one having any direct bearing on public-health work."

Dr. Gardner T. Swarts: "Not necessary."

Dr. Lee K. Frankel: "It does not seem to me that the land now used for cemeteries materially affects the housing situation. The tendency in recent years has been to develop cemeteries in the outskirts where land is comparatively cheap, and where the use of land for cemetery purposes does not materially affect the erection of homes."

Dr. J. N. Hurty: "The land that is given over to burial seems to me inconsequential, especially in this country and Russia, for instance. If the bodies were buried without

being embalmed and with lime thrown upon them, they would soon return to gases and ashes. This would be the next best method of disposal to that of cremation."

Dr. C. Hampson Jones: "I believe that it would be unnecessary to do so."

Dr H. L. Rockwood: "Many instances can be cited where land used for the burial of the dead could be used to better advantage but I am not ready to state that all burial grounds should be discontinued."

Dr. Peter H. Bryce: "For myself a cemetery such as Greenwood is a place of beauty, and restful to every thoughtful person. Sentimentally I would be sorry if these memories of the dead disappeared."

Dr. Royal S. Copeland's answer to this question is incorporated in his reply to Question One.

Dr. W. C. Fowler: "In some of the centers of population, where vacant land for building and recreational purposes is at a premium, such a course might be followed, but I am not prepared to advocate this course if vacant land not dedicated for burial purposes is available for the other purposes named."

Dr. Francis E. Fronczak: "No, unless there is a dearth of building area, rare, if at all, in American cities. The repose of the dead should be sacred and undisturbed, and the conversion of cemetery sites for building or other purposes should not be made without specific and warranted necessity."

Richard H. Lewis: "Yes, in the great overcrowded cities."

Charles O. Probst: "Eventually yes."

M. C. Woodruff: "In crowded cities or where land is not available for burial grounds, it would probably be better that they were used for habitation or recreation grounds as you suggest."

Is there any reason, scriptural or ethical, against cremation of our dead?

This question I asked a number of eminent clergymen of various denominations.

His Eminence Archbishop Hayes stated that "the Catholic Church has no intention, at this time, of changing her attitude on the matter of cremation." He further says, "Members and adherents of both the Jewish and Catholic faiths have the greatest reverence and respect for their dead, and never entertain, for a moment, the thought of cremating their remains; and we do not see, at this time, the desirability of entering into a discussion on the matter."

Monsignor Lavelle wrote me most cordially and regretted that he could not participate in the question I had proposed to him.

Rev. Alfred W. Martin: "To my knowledge there is no Scriptural or ethical reason against cremation, although, from the latter point of view, there is much to be said in its favor.

A decided negative answer was given by the Rev. Messrs. Fosdick, Shipman, Jefferson, Wise and Potter.

One of our relatively recent bishops of the Episcopal Diocese of New York, the late Rt. Rev. Henry C. Potter, had expressed the desire that his body be cremated and his wishes in this matter were complied with.

The Rev. Julius B. Remensnyder of St. James Lutheran Church, New York, writes that he sees in the creed of the Christians who believe in the bodily resurrection of Christ "the crux of the difficulty" and says that he does not know how it can be overcome. He adds:

"If it were not for its connection with this thesis of the resurrection, I should greatly prefer cremation."

The Rev. Harry E. Fosdick adds to his assurance that there is no Scriptural or ethical reason against cremation the following expression of a very strong conviction on the subject:

"I personally believe that the practice of cremation should at once supersede the old and pagan methods of burial. I personally have left explicit instructions that my body is to be cremated by my family. I have just come from China and if you could go there you would see at once that the introduction of cremation is one of perhaps the half-dozen greatest reforms most critically needed in the Orient. The waste land now occupied in China by tombs is one of the most pathetic spectacles in the Far East."

The Rev. Newell Dwight Hillis says that he has been an advocate of cremation for many years, and the Rev. Charles Francis Potter adds to his assurance that

there is no Scriptural reason against cremation, that he cannot see any ethical reason against it, but thinks the argument is rather for it. I am also indebted to him for the information that according to Hastings' Bible Dictionary, Vol. I, p. 519, Dr. Plummer, the minister of the University College, Durham, England, says:

"There is nothing essentially anti-Christian in cremation, and charity leads us to adopt any recurrent manner of disposing of the dead which science may prove to be least injurious to the living."

Now finally I will add to the expressions of opinion by these distinguished clergymen one by an eminent Unitarian divine who is no longer with us, the Rev. Thomas R. Slicer. In a correspondence with him on the subject of cremation, he wrote me as follows:

"I approve of cremation as a means of returning by the quickest possible process the chemical constituents of the body to the earth, to which that body is nearly related. The decay of the grave is combustion. It seems rational to accomplish in three hours what is badly done by the slower processes in thirty years. Nothing seems to me a more direct affront to nature than hermetically to seal up a human body and then place it in the ground, as though one defied nature to have access to that which belongs to it. I think no one can witness the incineration of a human body without feeling that a clean flame has sincerely and quickly disposed of the only part of the body which can be consumed, leaving the remainder to be returned to the earth as it was. I do not see how there can be any religious objection to cremation, except from the standpoint of those who believe in the resurrection of the physical body; but as all intelligent students now who believe in immortality believe rather that you cannot bury a man, and that eternal life is a condition and not a place, this objection from the religious standpoint must soon disappear. Feeling, as I do, that all the real relations are spiritual, and that everything else is incidental to the communion of one human soul with another, I shall be glad to see the time when society shall more generally approve of disposing of the house of life by means which shall remove its decaying structure quickly and with the least danger to the survivors. The fundamental proposition in my thinking is that man has a body, but man is a spirit. I have always felt that the seabird that flew back and forth over the flame in which Shelley's body was consumed on the shores of the Mediterranean might very well typify a liberated soul which stayed its flight awhile to watch its cage consume."

Regarding the objections raised by His Eminence Archbishop Hayes, I have only to say that I reverently respect his opinion when he speaks of the Catholic religion as being opposed to cremation of the dead, but according to Rabbi Stephen S. Wise's statement he is evidently in error in regard to the Jews for this gentleman distinctly says that there is no reason of which he knows, Scriptural or ethical, against cremation of the dead, and according to the daily press of a few weeks ago, a distinguished Jewish divine, Professor Gotthard Deutsch, of the Hebrew Union College of Cincinnati, had made in his last will and testament the provision that his body should be cremated. This wish was religiously complied with a few days after his demise.

To enumerate the many great men of other religious denominations who provided that their bodies should be cremated would fill pages. I only wish to recall here the name of Sir William Osler. His remains were cremated in London, and in accordance with his expressed desire and as a last gift, Sir William's ashes were conveyed to Montreal "there to be deposited in the midst of his books in the Medical College of his student days in which he held his first Chair, and which, to the end, retained his deep affection . . . McGill is to become his shrine, and for generations to come those who love medicine and its history will find there inspiration in that room where, surrounded by the books he loved so well, repose the ashes of Sir William Osler."*

*From a tribute paid to Sir William by Prof. George J. Adami, Vice-Chancellor of the University of Liverpool.

There is but one valid objection to cremation, and that is on medico-legal grounds; cremation would destroy evidence of poisoning in case such had taken place. This could thoroughly be provided against by rigid examination of the facts preceding death in case of cremation and also of the body, if need be. If all bodies before cremation would be subjected to a post-mortem examination, what a wealth of information and knowledge from which the living would benefit would be derived therefrom!

At what conclusions can we arrive from the study of the opinions expressed by some of our highest church dignitaries on the religious and ethical aspects of cremation, by the best medical authorities on its sanitary aspects, and their combined views on the economic aspect?

On the general sanitary and economic aspect 30 of my correspondents answered that cremation was preferable; 3 were opposed to it, and 4 were non-committal; 39 considered the ordinary funeral and burial as being far too expensive, and 2 were non-committal. In the possibility of infection arising from burial 3 answered in the affirmative; 12 thought it possible but not probable, and 9 did not believe it possible at all. As to whether it would be a wise policy to consecrate the many acres of land required for burial of the dead to the living for habitations or recreation grounds, 12 answered in the affirmative, 10 in the negative, 9 thought it good policy for congested and overcrowded districts.

It would thus seem that the majority of my correspondents believe in cremation on economic and general sanitary grounds, while concerning the other three topics there is a diversity of opinion. It remains now for me to meet the objection to my argument for a more economic and sanitary disposition of the dead. Let me first state that I do not advocate the annihilation of existing cemeteries, but that I can see no harm in their utilization for recreation grounds after the example of Lincoln Park in Chicago. The eloquent words of the Rev. Dr. Fosdick in reference to the famine-stricken and overpopulated districts in China, pointing out that cremation is one of the greatest reforms most critically needed in the Orient, are the best answer to why such lands should be used for the living instead of for the dead.

According to Mulhall and Reed, the increase in the density of population from 1820 to 1890 was 650 per cent in the United States (only 25 per cent in the United Kingdom and less than 100 per cent in France and Belgium). The rate of increase in this country has been vastly accelerated in the twenty-five years that have since elapsed. Our population today of over 100,000,000 has been doubling itself on an average of once in less than twenty-five years since 1790, and it will probably continue to do so in the future. Thus the time may come in not so distant a future when we, too, must cease ancestor worship by preserving our cemeteries, and instead utilize them for the benefit of the living.

I received letters from two of the most eminent sanitarians of this country. One, from my former teacher, Professor Hermann M. Biggs, Commissioner of Health of the State of New York, said:

"I am frank to say that I do not consider the subject 'Cremation Versus Burial' a sanitary question at all, and I have always absolutely refrained from taking any position on questions in which the health aspect of a problem was not a primary one. I do not think it is in this question."

Dr. John F. Anderson of New Brunswick, N. J., a former president of the American Public Health Association, likewise considers the subject of the high cost of burials and the question of the consecration of many acres of land to burial of the dead or for habitations or recreation grounds for the living, a purely economic and not a sanitary one.

With all due respect to my esteemed

teacher, Dr. Biggs, and my friend, Dr. Anderson, I cannot help emphatically differing from these gentlemen. For example, is not the consecration of Lincoln Park, a former cemetery of Chicago, to the use of the masses as a recreation ground in hot and oppressive weather, an experiment in which every hygienist and sanitarian should take the deepest interest? Will not the family physician laboring among the poor do sanitary, hygienic, and life-saving work when he advises his poor clients not to spend their scant savings, or even go into debt, for the sake of an ostentatious funeral? May he not even urge the simple and inexpensive process of cremation whenever he is sure not to offend the feelings or religious sentiments of the survivors? Does the friend and family doctor not do life-saving work by telling the poor bereaved relatives that they would better use their savings for more sanitary living quarters and nutritious food for themselves and children? Surely all this is within the province of the physician and sanitarian. It is a question in which the health aspect, if not a primary one, is certainly most important.

To show how well justified I am to plead for a more economic disposal of our dead, let me refer to Dr. Woodward's letter regarding the cost of cremation in Washington's municipal crematory. He says:

"The cost is $25.00 and in even of that fee imposing any hardship upon a person desiring to have the remains of any friend cremated, this fee is reduced."

From information received from a New York undertaker, cremation in this city for any person able to pay the expense need not exceed $100.

In contrast to the economic disposal of our dead by cremation, let us compare these figures with the cost of interment. From a recent book by Quincy L. Dowd on "Funeral Management and Costs" I quote the following:

"In treating of the settlement of estates in the Cook County (Illinois) Probate Court, the *Chicago Tribune* (March 7, 1919) set forth a reporter's examination of twenty-nine recent undertakers' claims against estates for funeral bills. These bills for funerals ranged from $64.05 to $729.50, the average was $281.30."

One must have had the privilege of practicing among the poor to realize what an expensive funeral means to the families who have often sacrificed their entire savings for a tuberculous invalid who had lingered for a year or two. If there is any need to plead for a more simple and inexpensive disposition of the dead, it is certainly apropos in such cases. There should be crematories in all cities and even the quoted figures of $25 to $100 could, I believe, be reduced by having the casket made partially of wood and partially of pasteboard, or the remains transported to the crematory in a wicker basket, which need not be burned if the crematory is of such construction that the body only need be enveloped in a sheet.

Yet I am far from pleading for a legal enforcement of cremation except for the unknown and unclaimed bodies. Even here, if evidence can be found among the effects of the deceased of a desire to be buried and not cremated, this wish should be respected. In our pleas for social reforms we should take to heart the advice given to me by President Woodward of the Carnegie Institution at Washington, D. C. Concerning cremation he wrote me:

"Many well-meant reforms have failed of approval by reason of overzeal of reformers and by reason of a general lack of appreciation of the benefits of the reforms. My impression is that the best way to impress the advantage of the reform in question on society at large is for the reformers themselves not only to advocate the reform but to offer themselves as object lessons. This I am willing to do in my own case."

Cremation is an artificial process of reducing the body to its chemical elements. What nature requires from ten to one hundred years to accomplish, the modern crematory does in only two hours, including the necessary time to cool the retort and remove the ashes. The body in its casket is placed in the retort and the entire contents incinerated. The ashes of the casket, being light, are carried out of the retort through port holes provided for the purpose. The heavier ashes of the body are left and taken out when the retort cools sufficiently. The ashes are then placed in a container, carefully marked with the name and date of cremation, and held to await the disposition desired by the relatives. Eventually they are either encased in an urn and buried in a cemetery or placed in a small crypt in a mausoleum, or scattered over the land or upon the water.

After a careful study of the sanitary, economic, and ethical aspects, I cannot help endorsing with all my heart the beautiful inscription on one of the cremation places near New York. It is carved in Latin in the stone arch leading to the cremation chamber: *"Vermibus erepti, puris iquibus consumimur"* — "Saved from the worms, we are consumed by the pure flames." I have witnessed a number of cremations in my life and concerning the feelings which overcome me on such occasions I may repeat here what I said in a previous plea for cremation:

"I have stood before the threshold of the crematory with a fluttering heart and trembled at the thought of using fire beside the form of one I loved. But when, in obedience with his own dying request, I saw the door of the incinerator taken down, its rosy light shine forth, and his peaceful form, enrobed in white, laid there at rest, amid a loveliness that was simply fascinating to the eye and without a glimpse of flames, or fire, or coal, or smoke, I said, and say so still, this method, beyond all others I have seen, is the most pleasing to the senses and most grateful to the memory. And as I turned away from the incinerator, where we had left the body of our friend, it was pleasant to think of him still resting in its rosy light, enveloped by what seemed floods of purity. When all was over, nothing remained but a few fragments of calcined bones and delicate white ashes and dust, perfectly pure and odorless."

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REPORT OF COMMITTEE ON VENEREAL DISEASES

Read before the Public Health Administration Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 14, 1921.

ACTIVE work along established lines previously reported has continued through the countries. Among the outstanding events in venereal disease control which have occurred since the last annual meeting of the American Public Health Association is the convening of institutes and conferences, national and international. Of such gatherings, the following are conspicuous:

The Institute on Venereal Disease Control was conducted by the United States Public Health Service at the New National Museum, Washington, November 22-December 3, 1920. This was an effort to disseminate the facts of venereal disease control to health officers, physicians, social workers, and nurses, nearly six hundred of whom registered for the Institute.

Immediately following the Institute was the All-American Conference on Venereal Diseases, held in Washington, December 6-11, 1920. This was the first of a number of regional conferences promoted by the League of Red Cross Societies. Four national organizations, two governmental and two voluntary, coöperated in the planning and administration of the Conference: the United States Interdepartmental Social Hygiene Board, the United States Public Health Service, the American Red Cross, and the American Social Hygiene Association. More than four hundred delegates registered, representing virtually every state in the union, including special representatives from Argentina, Brazil, Canada, Chile, Cuba, Ecuador, Honduras, Mexico, Paraguay, Porto Rico, and Santo Domingo. The work of the conference was divided under the following headings:

1. Medical Research and Laboratory Questions.
2. Diagnosis and Treatment of Syphilis.
3-4. Gonorrhea in the Male and Female.
5. Public Health and Administrative Problems.
6. Clinic and Hospital Questions.
7. Statistics.
8. Public Information and Education.
9. Law Enforcement Measures.
10. Protective Social Measures.
11. Psychological Aspects of the Venereal Disease Problem.
12. Social Service.

A preliminary report on the findings of the Conference has been published in *Public Health Reports* of July 15, 1921, by the United States Public Health Service, and copies of the report of the Conference may be obtained by addressing the chairman of the Administrative Committee of the Conference (Room 1545), 370 Seventh Avenue, New York City.

The second regional conference on venereal diseases was the North European Conference, held in Copenhagen, May 20-25, 1921. The participating nations were Great Britain, Norway, Sweden, Denmark, Finland and the Netherlands. Representatives of the German Red Cross Society were also present. The questions of adequate provision by these important maritime nations of diagnostic and treatment facilities for seamen of their merchant marines, and of notification, were subjects of live discussion. Resolutions adopted recommended that the questions of compulsory notification and treatment must be decided by individual nations; that medical students should be required to be proficient in recognizing and treating venereal diseases; that provision should be made for such instruction of medical practitioners; that regulation and official toleration of prostitution had been found to be medically useless and may even prove positively harmful; that rescue homes are of value; and that recreational and educational measures should be promoted.

The other regional conferences planned by the League of Red Cross Societies for the near future are: the Western European Conference on Venereal Diseases, to take place in Paris, and the Southeastern European Conference on Venereal Diseases, to take place in Prague. A conference will be held later in India, and a final international meeting in Paris in the autumn of 1922 will complete the series.

Many other conventions are giving attention to the venereal diseases, such as the International Conference of the Abolitionist Federation, scheduled for November 3-5, 1921, in Rome, at which a number of interesting papers were read, among them one on the compulsory treatment of the venereal diseases, by Dr. von During of Germany.

In the United States, federal and state programs of venereal disease control have been steadily promoted. The Sixty-sixth Congress deleted from the Sundry Civil Bill appropriations for 1922 for the maintenance of the work of the Interdepartmental Social Hygiene Board, including apportionments to the state boards of health for venereal disease control, but the special session reinstated an appropriation of $225,000 for the protective measures program, refusing to consider the other requests on the ground that the several states ought now to support entirely the medical and educational phases of the work. Many of the state boards of health and twenty-seven legislatures have provided funds for diagnosis and treatment facilities within these states and, to a large extent, additional appropriations and volunteer funds are available. Seven states adopted measures to prohibit the advertisement of venereal disease nostrums, and six states adopted laws to prevent ophthalmia neonatorum.

Among the foreign countries, Australia is one of the most advanced in venereal disease work. Five of the six Australian states possess legislative enactments aiming at the control of venereal diseases. A bill has been drafted and will soon be presented to the parliament of the sixth state, dealing with the same subject. Among other things the bill provides that a prisoner suffering with venereal disease may be detained for treatment beyond the period of his sentence. If a patient with venereal disease persists in marrying, the commissioner may inform the other party. Any person knowingly infecting another shall be liable to a penalty or imprisonment, or both.

The Scandinavians, too, are far in ad-

vance of other countries in their methods of control. In Denmark a system of registration has existed for about half a year. The Wassermann reaction is carried out only in the institute and under state control. The machinery for the Wassermann reaction being centralized, it was comparatively easy to evolve a system of registration centering about this reaction. The Wassermann forms have been worded so as to serve the double purpose of serological report and registration. Notification is thus almost automatic; it is confidential, as identification data supply the place of names. In practice it has been found that syphilologists are not likely to make use of the test the first few years after infection. To overcome this difficulty they have been supplied with special registration forms. Although registration has existed only half a year, about 10,000 persons have already been entered on the Serum Institute's registers.

Like Australia, Canada is showing much progress. According to the last reports received, 31 clinics have been established. While statistics for the whole of Canada are not available, the statistics of the province of Quebec are indicative of the whole Dominion. Since the first of January, 1921, Quebec's clinics have had 3,497 patients, to whom 36,727 treatments were given. As a result of the recent campaign in Quebec, secondary infections of syphilis are said to have decreased in a proportion of about 50 per cent.

Among the newly established governments, Czecho-Slovakia is setting the pace in efficient venereal disease work. The section of social pathology in the Ministry of Public Health recently prepared an experimental reporting of venereal diseases for a month. This measure is in connection with the new bill on venereal diseases by which free treatment will be offered to all venereal patients.

In Roumania, by order of the board of sanitation which came into force lately, syphilis, both primary and secondary, and gonorrhea, have been made compulsorily notifiable in certain counties of the kingdom. The certificate of notification which is required to be given, sets forth the age, sex, occupation, and marital condition of the person reported. The stage of the disease or its duration is also recorded. The name and address of the person are not disclosed, but he is denoted by a number or other reference in the records of the medical practitioner who is notifying.

Poland, too, is keeping abreast. The Association of Social Hygiene in Poland called a second meeting which was held in Warsaw, October 30-31, 1921.

Uruguay, through legislative action, has established a national tax for the benefit of a campaign against syphilis. This is an effective way of making the public realize that venereal disease is a public-health problem, as well as it is a means of acquiring the funds for the campaign.

Along educational lines, the demonstration trips made by the social hygiene field car in North Carolina, Florida, and New York, are by no means unimportant. This truck is completely equipped for showing motion pictures with a minimum of trouble, under all kinds of conditions. The staff consists of an advance officer, two lecturers, and an operator. In the North Carolina campaign, five counties were completely covered and 53,569 persons saw the motion pictures and heard lectures. In Florida one hundred and twenty-seven lectures were delivered and one hundred and sixty-nine films were shown, reaching in these ways about 18,500 persons. In New York more than 75,000 people studied the exhibits and carried away 152,200 pamphlets, while more than 62,600 saw one or more films and heard the lecture.

Campaigns among the Negroes both in the South and the North by federal and private organizations are significant of the progress in the effort to control venereal diseases and promote proper sex education. The aim has been to secure

the coöperation of Negro leaders in the problem as it affects their people. These campaigns have resulted in some 400,000 Negroes being given the essential facts relative to venereal disease. Social hygiene lecture courses have been conducted for social workers and teachers. In the South many Negro schools and colleges have seriously considered the introduction of sex education as an integral part of educational work. During the summer, 3,000 teachers and about 500 clergymen were reached in social hygiene courses.

The activities of the voluntary agencies have been tending toward better coördination and prevention of duplication. The two leading agencies in Great Britain, the National Council for Combating Venereal Diseases and the Society for the Prevention of Venereal Diseases, show a tendency toward less opposition than formerly. In the United States close coöperation exists between the voluntary organization — the American Social Hygiene Association — and the various federal and state agencies.

Especial mention must be made of the estimable work of the League of Red Cross Societies. Since its formation, it coöperates in the efforts of every country that seeks to eradicate the venereal diseases. Not only are we indebted to it for the regional conferences through which much has been and can be accomplished, but also for many surveys of venereal disease conditions in various countries, notably Czecho-Slovakia, Poland, Roumania and Serbia.

The United States Public Health Service has coöperated with state boards of health in the development of the 442 clinics, which were in existence on June 30, 1921, according to the latest report of the Service. During the fiscal year ending June 30, 1921, 480,651 arsphenamin treatments were given by the Service. This does not include a large number of treatments given by clinics not receiving state and federal aid and, therefore, not reporting to the United States Public Health Service. The coöoperative rural health work conducted by the Public Health Service is worthy of note also. During the fiscal year, 28,017 treatments to rid persons of venereal disease infection and prevent the spread of infection were administered in the twenty-nine coöperative rural health districts.

That the venereal diseases are gaining marked recognition among the general practitioners is evidenced by the notice they are given. At the meeting of the American Hospital Association, the following resolution was passed in regard to them:

> *Resolved,* That we, the Trustees of the American Hospital Association, do hereby urge all hospital authorities to give consideration to this matter—to the end that all general hospitals shall admit venereal disease patients and enter these diagnoses as other diagnoses on histories, whether primary or complicating, and also develop sufficient dispensary service to provide care for the ambulatory cases and the ambulatory stages of the cases treated in the hospital.

It is not in the province of this report to outline future activities, but it may be said that the plans of the United States Public Health Service, including its twenty-four regional public-health institutes during the winter, are well under way and promise good results; the plans of the American Social Hygiene Association are likewise well organized and being put into operation; the state and local programs so far as reported are promising both in the official and the volunteer field.

WILLIAM F. SNOW, M. D.,
Chairman.
W. A. EVANS, M. D.
W. H. KELLOGG, M. D.
J. D. ROBERTSON, M. D.
W. H. PETERS, M. D.

REORGANIZATION OF THE ASSOCIATION

At the meetings of the Executive Board and Governing Council of the A. P. H. A. held in Washington, March 15 and 16, 1922, an inquiry into the government of the Association and discussions leading to a possible reorganization formed the principal order of business. The inquiry was an outgrowth of a resolution presented at the Fiftieth Annual Meeting in November by Dr. Louis I. Harris, following which a Committee on Association Government, to investigate the matter was appointed by President McLaughlin, with Dr. Francis E. Fronczak as chairman. A majority of the committee felt that the charges were not justified, but the entire question was submitted to the Council for discussion.

Dr. Harris' charges were, in brief, as follows:

1. That the leadership and direction of the Association were being assumed in increasing measure by representatives of corporate agencies and of lay groups to the exclusion of the state and municipal health officials whom it should primarily serve.

2. That the Association was not headed for big and clearly defined objectives and that it was failing to meet its opportunities for service. Among the neglected responsibilities, he cited the following:

Standardization and promotion of activities in venereal diseases, mental hygiene, tuberculosis, industrial hygiene, rural sanitation, etc.

Propaganda for adequate salaries for health officers and work for education of health officers.

Activity upon the subject of prohibition, the Sheppard-Towner Bill, federal health administration, housing reform, and health insurance.

3. That an unwise policy was pursued with regard to creation and administration of sections, with consequent deterioration of section work.

A general discussion of these criticisms followed in which certain shortcomings of the Association were acknowledged, but it was denied that corporate influence had been detrimental to the Association. An analysis of the Government Council showed that its proportions agreed very closely with those of the membership of the Association (as determined by a random sample) and, in fact, that it contains a larger percentage of health officers than the Association in general:

Employed by	Governing Council		Ass'n as a whole
	No.	%	%
Official health agencies.	35	67	56
Institutions of learning.	6	12	12
Corporate agencies.....	6	12	10
Hospitals	2	4	4
Other health agencies and miscellaneous....	3	6	17
	52	101	99

It was stated that activities of the Association in furtherance of various types of propaganda has been severely limited by lack of funds and by the nature of the membership.

Dr. Harris was urged to present some constructive suggestions, and offered the following:

1. A committee, chiefly of health administrators, to revise the constitution, and form of organization.

2. Voting power and determination of policy to be limited to health administrators and teachers of public health.

3. All sections to serve as special reference boards on technical questions, to formulate standards in their own fields but to be subordinate to the public-health administrative body.

4. Popular education through the press and other means to make the influence of the Association more widely felt in health matters.

The following resolution, proposed by Dr. Lee K. Frankel, was unanimously adopted by the Council:

RESOLVED, that the President of the Association be authorized to appoint a representative committee of fifteen from the membership of the Association to consider the advisability of a fundamental reorganization of the Association and a clarification of its policy.

HOW CAN WE BEST SOLVE THE MIDWIFERY PROBLEM

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MIDWIFERY STATUS IN THE UNITED STATES

ON the basis of the registration area (53 per cent of the total population), it is estimated that there were born in Continental United States in 1918, 2,664,685 babies, including 91,665 stillbirths (3.44 per cent). Of the babies born alive, 10 per cent died before the end of the first year, so that including stillbirths about 350,000 out of the total number born during the year, perished—that is to say, 13 per cent or 1 out of every 8.

Statistics (Howard) show that the stillbirth rate in the birth registration area is 60 per cent higher than that for Stockholm (2.16 per cent); that the rates for New York (4.38 per cent) and Philadelphia (4.39 per cent) are 35 per cent higher than that for Birmingham (3.24 per cent), and over 100 per cent higher than the rate for Stockholm.

As to maternal mortality, statistics show that during 1913 about 16,000 women died in the United States from conditions dependent upon childbirth; that in 1918, about 23,000 women gave up their lives in the same way; and that with the 15 per cent increase estimated by Bolt, the number during 1921 will exceed 26,000. Maternal mortality in this country when compared with certain other countries, notably England and Wales and Sweden is according to Howard "appallingly high and probably unequalled in modern times in any civilized country." And according to the same authority, these rates for the United States of 88.48 per 10,000 births (live and still) are on a par with those of Sweden 110 years ago; are 75 per cent higher than those of England and Wales 60 years ago; are 120 per cent higher than the rates for England and Wales in 1911-15; and exceed the rates of England and Wales for 1918 by nearly 75 per cent for puerperal fever and 150 per cent for all other affections of the puerperal state combined. Howard shows also that New York City's rate (46.11), which is much lower than that of any other American city, is 35 per cent higher than that for Birmingham (33.49).

According to Williams this condition of affairs has existed for a very long time—"for the last 50 or 75 years with comparatively little improvement." And this is not all. Polak is authority for the statement that "more than 61 per cent of all gynecologic surgery is the direct result of poor obstetric practice." Thus in addition to the awful mortality, immediate and remote, untold thousands of women are crippled and invalided and subjected to serious surgical operations each year as the inevitable consequences of childbirth under existing midwifery conditions in this country. The horror of the situation becomes apparent when it is realized that all but a very small percentage of this mortality and morbidity is inexcusable and preventable by the proper handling of obstetric cases, as may be seen from the practice of obstetric specialists the world over.

As early as 1875-77, in the Royal Maternity Charity of London, out of 9,019 deliveries of women in their homes, but 21 women died or 2.3 per 1,000 deliveries; in the work of the Maternity Center Association of New York City there were 9 maternal deaths in 4,496 confinements or an incidence of 2 per 1,000; and in the Pittsburgh Maternity Dispensary out of 3,384 confinements but 6 women died or 1.7 per 1,000 deliveries; and in the practice of obstetric

specialists, especially in hosiptals, maternity mortality is almost nil.

In this country we lose before the end of the first year one baby out of every ten born alive; whereas in New Zealand, with the lowest infant mortality rate in the world, but one baby in twenty born alive perishes before the end of the first year. What may be accomplished has been demonstrated by the New York Maternity Center Association where intensive prenatal care was responsible for a 50 per cent reduction in the number of stillbirths and of babies dying during the first month of life.

As maternal and infant mortality rates are the indices of the "social well being of a people and of the kind of care which its pregnant and lying-in women receive," it is evident that the United States occupies an unenviable position among the civilized nations of the world, seventeenth in maternal and eleventh in infant mortality.

THE PROBLEM—ITS NATURE AND SCOPE

The problem, as I see it, is to provide competent obstetric care for every childbearing woman in the country for what she is able to pay.

Ever since the days of Pasteur and Lister we have known how to prevent sepsis following childbirth. Statistics show, moreover, that our present-day knowledge of obstetrics is quite sufficient when properly applied in practice to eliminate all but a very small percentage of the maternal mortality and morbidity and to reduce the fetal mortality by more than one-half. The trouble is not that we do not possess the knowledge but that we do not use it.

Some years ago while passing through the wards of the Dixmont Hospital for the Insane near Pittsburgh, I was accosted by an inmate who insisted that he had a secret which he must tell me. Taking me aside, he whispered into my ear the information that he knew how to get rid of the typhoid fever in Pittsburgh.

I asked how he proposed to do it. He said. "With pure water."

I then asked how the pure water was to be secured. His reply was that he knew where Pittsburgh was and where the pure water was.

"But," I asked, "how do you expect to get the water into Pittsburgh?"

He replied. "That's the secret," and walked away well satisfied with his answer.

I followed him and after much urging finally secured the secret which he imparted with much gravity and again in a whisper, "Why, just build a big pipe line into Pittsburgh and let the water run through it."

And, why not? Why don't we stop talking about it and just do it? We have the knowledge in one place and the people we can help in another. The problem is to bring them together. It can be done; but the objection is that the pipe line costs more than we are willing to pay. Just so; and this means that the problem is a purely economic one.

The objects of childbirth and the results of childbirth are so intimately related to the social and economic welfare of the people that they become matters of grave public concern when opposed by destructive influences of such vast proportions that the individuals affected cannot withstand them. Each year in this country about two and a half millions of women—less than 2½ per cent of the total population—are charged with the responsibility of the nation's childbearing; each for herself and dependent solely upon her own resources must bear the physical and economic burden associated therewith. With what risk to her life and how fruitless and useless much of her burden-bearing is, we learn from the more than 2,000 maternal and 30,000 infant deaths each month.

We are told that 150,000 people die each year in the United States from tuberculosis—a rate of 150 per 100,000 of the population. We are appalled at the awful loss of life and economic wastage.

The whole nation is aroused and in every city, town and village in the land money is freely given and everywhere the cry goes up for help to fight the scourge, and very properly so. But a far greater scourge follows in the wake of childbirth which stands next to tuberculosis as the cause of death among women between the ages of 15 and 45. A conservative estimate places the number of infants born dead and dying during the first two weeks of life at 200,000 each year, of which at least 90 per cent are dependent upon causes having their origin in pregnancy or labor. Thus 200,000 women and infants die each year in the United States as the direct result of childbirth, a mortality of 200 per 100,000 of the population—a rate 33⅓ per cent higher than that from tuberculosis in both sexes and all ages. As it is not known what proportion of the population is exposed to tuberculosis, we cannot know the proportion of deaths to those exposed. On the other hand we do know that out of approximately 5,000,000 mothers and babies exposed, 200,000 die, a rate of 4,000 per 100,000 of the exposed—that is to say, 4 per cent or 1 in every 25 exposed.

This great loss of human life and the economic wastage dependent upon it are due to ignorance on the part of the people, and the economic impossibility of providing for the vast majority of women competent obstetric care for what they are able or willing to pay. The care which the average obstetric case requires is so great—so time and strength-consuming, and so exacting—that no physician can do the work, as it should be done, under existing conditions for the compensation obtainable. It is not so much a question of how doctors and nurses and others can be adequately trained for the work as it is a question of how to provide the funds necessary to make their services available. It will avail little to provide trained workers if the people through ignorance will not employ them or through lack of funds cannot pay them.

We might just as well be honest with ourselves and admit that the reason why there are not more trained obstetricians is that there is no demand for them. I care not how good the teaching in the medical schools, it will not raise the level of obstetric practice among family doctors unless the people are at the same time educated to employ them and to pay them a living wage. Every teacher in obstetrics has long since known this. Many of the doctors we send out from the medical schools do conscientious work for a time, but they soon learn that they cannot keep it up and prosper financially. Thus the more conscientious among them give it up, the others continue in the work putting as little time as possible upon it and accepting in the way of compensation just what they can get for it. The result we know.

We have reached the place where it is coming to be understood that the economic factors involved are so tremendous and so complicated that relief cannot be expected without municipal, state and perhaps federal aid—not in any sense as a charity, but as a matter of wise public policy and of justice to those to whom we look for the perpetuation of our family and national life and the prosperity of the people. The sooner we recognize this, the sooner may we expect results. We should get all the facts, formulate a plan of proceedure, count the cost and go to work without further delay.

DIFFICULTIES IN THE WAY OF A SOLUTION

A. Inadequate Birth and Death Registration: The birth registration area includes about 53 per cent of the total population; the death registration area, about 70 per cent. Registration is in the hands of the several states in the respective areas and is therefore dependent upon widely varying conditions of legal enactment and administrative efficiency. The records lack uniformity in nomenclature and classification and differ

widely in completeness and comprehensiveness. What data we profess to have for the nonregistration area are from estimates or guesses based largely on the records of the registration area—some good, some bad, and all deficient in certain important respects. It is evident that from records so incomplete and inaccurate, the preparation of vital statistics of definite value is impossible.

In the countries having the lowest infant and maternal mortality rates, national birth and death registration has been in existence for a long time: Sweden since 1749; France and Norway since 1801; Prussia since 1816; England and Wales since 1838; and New Zealand since 1871. Efficient administrative measures and the education of the people have brought the birth and death statistics in these countries to a high degree of completeness.

As it appears, the position of the United States among the civilized nations of the world, in regard to infant and maternal mortality, is just about what might have been expected from our birth and death registration.

B. The Economic Impossibility of Providing Competent Obstetric Care for What the People are Able or Willing to Pay: As previously pointed out, the problem is very largely an economic one. Because they are unable to pay for anything better, the work among the poor has been left very largely to midwives and incompetent practitioners. Even among people in more comfortable circumstances the choice of an obstetric attendant is all too frequently determined by the size of his fee. So long as obstetric standards are dependent upon the economic status of the individual it will not be possible to raise them.

C. Low Obstetric Standards: The question naturally arises as to what extent doctors are responsible for the present-day standards of obstetric practice in this country. There can be no question but that the great majority of doctors practicing obstetrics to-day received very poor training during their college days. We are reaping today, moreover, the harvest from the planting done by diploma mills and proprietary medical colleges of former days, many of whose graduates are still in the most active years of practice. We can hope for little improvement until the doctors who are being educated to-day supplant these older men.

It is true that great improvement in the teaching of obstetrics in the medical schools and hospitals of the country is indispensable to the solution of the problem; and yet, the teaching, however good, will leave untouched the social, economic and administrative difficulties which are far greater and vastly more complicated in obstetrics than in any other branch of medicine. For example, take surgery. The American College of Surgery is doing a wonderful piece of constructive work in standardizing surgery—in saying who shall and who shall not practice surgery in the future. Why not standardize obstetrics in the same way? Obstetrics is a branch of surgery; its successful practice is dependent upon surgical principles and surgical technique. The answer is plain. The obstetricians of the country are the family doctors and the midwives, who know nothing about surgery.

Moreover, all surgery is done by physicians, usually under favorable hospital surroundings. The people understand that surgery cannot be done safely outside of hospitals; adequate hospital facilities have thus been provided, the work is under good control, the results are satisfying and inspiring. The poor receive just as good care as the rich and adequate compensation is generally assured. How different with obstetrics: less than 5 per cent of confinements occur in hospitals; only two classes of patients receive standard care—the poor in hospital wards and dispensaries and the well-to-do, both usually in the hands of specialists, and probably not over 10 per cent of the cases.

Every teacher in obstetrics knows that when the young doctor receives his diploma he is no more fit to practice obstetrics than he is fit to practice surgery or opthalmology. The people know it in respect to surgery and opthalmology and will not employ him; the doctor himself knows it and takes special courses and serves long apprenticeships before he will accept the responsibility. But in obstetrics, without special training, the young doctor will accept anything that comes along from the day he hangs out his sign. And, why not? It is expected of him. The midwives are doing it without training; the doctors about him are doing it and with perhaps less training than he; and then too, obstetrics opens the way to family practice which, after all, is what he wants.

Obstetric standards are low very largely, also, because the people are not convinced that special training and skill are needed. Obstetrics comes from a Latin word meaning "to stand before" or as a sneering colleague once said, "to stand around." From the days of ancient Egypt and Greece old women have been standing around at confinements; and now, much as then; and all that many doctors are able to do is to stand around; in fact, anyone can stand around, anyone can do the job. Such a thing as the "science and art of obstetrics" does not exist for most women; over them the mediaeval cloak of ignorance, superstition and fatalism still hangs, shutting out the light of the present day. In this lowly and despised position, the hand-maiden of obstetrics finds herself among her more favored sisters of medicine.

D. The Opposition of the Medical Profession: Perhaps the most formidable opposition to fundamental changes in the practice of midwifery as it exists to-day will be found in the medical profession.

At the meeting of the American Gynecological Society in June, 1921, Dr. Robert L. Dickinson of Brooklyn made the following statement: "Medicine is proverbially myopic. We refuse to see what the social workers see; therefore the social worker has got busy and proposed a remedy. What do we do? We try to thwart it. The Sheppard-Towner Bill is not what we prefer or favor; therefore instead of taking half a loaf, we refuse bread. We refuse appropriations if the money does not go where it belongs. If it is not done by the state, it is helped by the nation, therefore it is bad legislation and we will refuse it. . . . We must welcome these statistics on prenatal care, however bad they are in form. . . . For nearly twenty years I have tried to do what little I could to leaven the mass of the obstetric work of the general practitioner, to raise that level. Gentlemen, whatever progress we have made in our maternities, we have failed to raise that level. Let us then in God's name welcome any outside help, however mistaken, for social health insurance and all the rest are inevitable; we cannot stop it."

I come from Pittsburgh which had in 1920 the highest infant mortality rate of any "of the large American cities for which reliable records are available." Pittsburgh also had in 1920 a maternal mortality rate of 9.6 per 1,000 confinements (149 in 15,508)—a rate of 9 per cent higher than the rate (8.8) for the entire birth registration area in 1918, and 109 per cent higher than New York City's rate (4.6) for the same period. To me at least these rates are significant.

In 1909 I did the first organized prenatal work that had been done in Pittsburgh. In 1912 the Pittsburgh Maternity Dispensary began work under my direction as Professor of Obstetrics in the University of Pittsburgh and Medical Director of the Magee Hospital. In six years over $80,000 was spent in support of the work, every dollar of which was contributed by my patients and friends. During this time 3,384 confinement cases were cared for in the tenements by the dispensary. Over 56,000 visits were

made to these patients by the dispensary nurses, social workers, and doctors—all full-time workers on salaries. Fifty-eight per cent of the women were foreign born and 16 per cent were negroes. There were 6 maternal deaths—a rate of 1.7 per 1,000 confinements; and the fetal mortality was 6.2 per cent for stillborn and babies dying during the first two weeks following birth.

I was also responsible for the plans, furnishing and equipment, and organization of the work of the Magee Hospital which was regarded as the most modern woman's clinic in the country. The hospital and dispensary combined to form a public welfare and teaching unit, the equal of anything to be found anywhere. But the work done by these two institutions was bitterly opposed by the medical profession of Pittsburgh, with the result that the Allegheny County Medical Society preferred "charges of unprofessional conduct" against me—as their directing head—as follows:

In connection with the hospital—"for acquiescing in a policy which is detrimental to the public and the profession"—that is, the policy of a closed hospital with 21 private rooms.

In connection with the dispensary—"for taking patients which are able to pay a private physician; for taking patients which had already engaged a physician; and for soliciting patients."

I was declared guilty of these charges and suspended from the Society as the sentence read—"for one year or until the things complained of are corrected." Three years later, in October, 1918, as a war measure I was separated from my work, the hospital being commandeered for government service. Thus in a day the work of fifteen years was swept away.

Please do not miss the point of this recital. What happened to me is not in the least important. But it is important to remember that these charges were all based upon purely financial considerations, the lessening of doctors' incomes as the result of free hospital and dispensary care given to patients unable to pay for it.

Pittsburgh is perhaps not different from other places; it appears, in fact, that the opposition of the profession is everywhere much the same. The rights of the patient to good care, her inability to pay, even life and death become secondary considerations. Thus the whole matter assumes the aspect of a commercial proposition, with the patients the stock in trade and the doctors determined to keep the business. On the other hand, the people are coming to understand that there are many thousands of unnecessary deaths each year in the practice of midwifery as the result of ignorance and neglect; the Sheppard-Towner Bill is the "handwriting on the wall"—the proclamation that the people are about to demand that something be done about it. What shall be done under the circumstances, that is, with these two opposing forces in conflict, is a part of the question which I am expected to answer.

THE REMEDY

A. Uniform Birth and Death Registration for the Entire Country; Vital Statistics Sufficiently Comprehensive to Give All the Facts Pertaining to the Mortality and Morbidity of Maternity and Infancy: As stated by Howard, "Vital statistics holds the same relation to advance in public-health knowledge and administration that pathological anatomy bears to the advance of fundamental knowledge in clinical medicine and surgery."

Dependable vital statistics gives the only findings upon which an intelligent statement of the problem under consideration can be made; furnishes the only reliable data for the institution of corrective measures; and provides the only means of judging results obtained. Vital statistics, moreover, gives a survey of the field and picks out the black spots therein, while registration records fix the responsibility in individual cases and thus point the way for correction or improvement. Without some such system of

effective checks upon the work of obstetric attendants followed by aggressive remedial procedure, marked improvement in the practice of midwifery may not be expected and the solution of our problem is impossible.

We talk long and loud about supervising the midwife but not a word about supervising the doctor. In standardizing surgery, the hospital records are used as checks upon the individual surgeon and the method employed for supervising his work. As 95 per cent of the obstetrics is done in the homes, the birth and death records and vital statistics compiled therefrom are the available checks upon the individual obstetric practitioner and may be used effectively in supervising his work.

To be of any great value in the solution of our problem, registration must be reasonably complete and must be uniform throughout the country. In my opinion this will never be accomplished except through national registration—financed and directed by the Federal Government and under Civil Service.

The first state in the Union to adopt registration, was Connecticut—73 years ago; the second was Rhode Island—51 years ago. If left to the states, many years will pass before registration covers the country and when it comes, it will be much as now.

No attempt should be made at this time, however, to secure federal registration. The first step should be the establishment of a federal department of public welfare or public health with its executive head a member of the President's Cabinet. In the law creating this new department, provision should be made for a bureau of birth and death registration and vital statistics, through which all the other bureaus having to do with health matters can best be coördinated—as vital statistics is the one common meeting ground upon which they can come together. At present there are 33 different bureaus engaged in some sort of health and welfare work scattered through the various departments of the government. They should be brought together under one roof, closely coördinated and operated under a common policy with a single directing head.

B. The Extension of the Work of the Children's Bureau as Contemplated in the Sheppard-Towner Bill: I am in thorough accord with the provisions of this Bill. Its enactment into a law* will mark the beginnings of better things for American mothers and babies and will be an appropriate endorsement of the splendid work of the Children's Bureau during the nine years of its existence.

There are two suggestions which I should like to make:

1. That the million dollars to be apportioned among the several states should be contingent upon acceptable birth and death registration within the states. The appropriation is relatively so small that at best but a small percentage of the work can be cared for during any one year. It will be better, therefore, to limit the work to the states having good statistics in order that something definite may be accomplished. If this plan were followed, I believe that the ineligible states would soon fall in line by adopting registration, largely out of state pride, partly to get the money. In the meantime the delinquent states would have the $10,000 each year appropriated by the Federal Government, for purposes of propaganda, which undoubtedly would hasten the day of registration and of additional federal aid.

2. That in planning for the work within the several states, an effort should be made to concentrate upon a limited number of cities and rural districts, in order that the whole problem may be worked out for each place where it is undertaken. The places chosen should be selected because of certain typical social, economic and industrial conditions more

*Since this address was delivered, the Sheppard-Towner Bill has become a law.

or less representative of the states in which they are located, keeping in mind always the advisability of cleaning up the worst spots first.

C. Specific Administrative Measures: Two classes of patients constitute the problem of this paper: Class I—the so-called "poor" who are able either to pay nothing or but a part of the cost of caring for them, and Class II—the women of the great middle class who are unwilling to accept free care and too proud to avail themselves of the public wards of hospitals, and yet are financially unable to employ the trained obstetrician and to pay for the things which as a matter of course go with him, and who consequently fall to the lot of the underpaid and usually incompetent practitioner.

It is evident that these two classes must be provided for upon entirely different bases.

Class I: The vast majority of these women will remain at home for confinement, but an increasing number will go to hospitals.

Hospitals: For the care of those women who cannot for one reason or another remain at home, hospitals are of course indispensable; and for the training of doctors, nurses and midwives as it should be done, the crying need of the day is for modern maternity hospitals, specially constructed, suitably equipped, properly conducted, and liberally endowed. Such hospitals in sufficient numbers is the solution for the hospital care of patients of this class, which as it happens furnish also the obstetric teaching material. In medical teaching centers, therefore, these hospitals should be under the control of medical schools.

In any scheme to provide home care for patients of this class, trained workers in sufficient numbers must be anticipated to meet the demands of the growing work. With the growth of the home service, not only will increased hospital facilities be necessary to supply the trained workers needed, but increased hospital service will also become necessary to care for the increasing number of patients discovered to be unsuited for home care. Thus the hospital and home services are interdependent and must be developed together, and together they cover the entire field of obstetric service to the patients of Class I.

Maternity Centers for the Home Service: I wish to say very positively that I do not believe that the midwife is the solution of the problem in the home service to the poor. It is true that the foreign-born women prefer midwives from custom, but it has been my experience that if you have anything to offer which is really better than the midwife and costs no more, even the foreign-born women are quick to avail themselves of it. It will not get us anywhere to say that midwives do just as good work as the average doctor, which may be true. It should not be a question of the lesser of two evils. Neither is fit. We want something better; we want well trained doctors to attend women in confinement. The only question is as to how they may be provided. The answer is, "By paying them a living wage." And this can be done, not as heretofore, by placing the entire burden upon the doctor; and certainly not by paying specialists' prices out of the public treasury to each doctor for caring for a few cases. The doctor must be enabled to get his money from small fees received from a much larger number of patients cared for under time-saving and strength-conserving conditions; he must do his work at the minimum expense to himself, and he must not be asked to do any work for which he is not paid the stipulated fee. This means that the public must provide the administrative machinery and the physical equipment necessary to the successful prosecution of the work from the obstetric standpoint; and that the doctors

must be relieved of all work that can be done by others—public-health nurses, social workers, and midwives.

The social worker should be charged with the responsibility of deciding upon the eligibility of patients for admission to Class I and of fixing the charge, if any, in each case. As far as possible, her decisions should be based upon instructions and schedules provided by a governing board. This procedure would eliminate controversy and remove doubt as to whether or not certain individuals are entitled to the service.

The nurses should be trained to do all the antepartum and postpartum work, from both the doctors' and nurses' standpoints, with the doctors always available as consultants when things go wrong; and the midwives should be trained to do the work of the so called "practical nurses," acting as assistants to the regular nurses and under their immediate direction and supervision, and to act as assistant-attendants upon women in labor —conducting the labor during the waiting period or until the doctor arrives, and assisting him during the delivery.

In this plan the work of the doctors would be limited to the delivery of patients, to consultations with the nurses, and to the making of complete physical and obstetrical examinations on patients at the time of their admission to the service. The doctors should be paid a stipulated fee for each case on the basis of all the confinements cared for during a given period. Under this arrangement the doctors would have to work together in a coöperative association with an equitable distribution of the work and earnings.

Class II: The best solution of the problem for this class of patients is the maternity hospital with a sufficient number of moderate-priced private rooms, built and equipped by municipal appropriations and private benefactions, operated on a cost basis, and the patients cared for by private doctors working together in private coöperative associations as described so as to be able to charge fees commensurate with the patients' circumstances.

I fully realize that the weak point in the plan proposed is that the doctors would in all probability oppose it, as they are opposed to any plan which includes municipal or state aid looking toward the solution of the problem on a public-health or public-welfare basis.

In the period of readjustment in medicine which is opening before us, every effort should be made to avoid anything which tends to weaken the morale of the profession and to destroy individual initiative and individual freedom. The estrangement of the medical profession in the practice of midwifery will react upon the whole medical fabric with great injury to the public good. Every effort should, therefore, be made to secure the coöperation of the profession, which I am sure will be impossible if large numbers of midwives are trained to supplant physicians in the practice of midwifery.

On the other hand the doctors must make up their minds to a compromise in the matter. It is still in their hands to effect a reorganization in their own interests, if they will organize not to keep up prices but to do the work which must be done at prices which the people can pay. The great fear is, however, that they will not listen to reason and that when the people come to know all the facts of the midwifery problem, an attempt will be made to solve it without their coöperation.

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PUBLIC HEALTH WORK IN CEYLON

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CEYLON, the "Eden of the Eastern Wave," famous from ancient times for its pearls, precious stones and spices, is an island situated near the southern extremity of the peninsula of India. It is a British crown colony.

Ceylon is slightly smaller than Ireland, being 25,000 square miles in extent. The south-central portion is very elevated, there being several mountain ranges culminating in peaks, the highest of which is 8,296 feet. There are nine other peaks over 7,000 feet in height, and 150 summits ranging from 700 to 3,000 feet above mean sea level. The northern portion of the island is of very low elevation, and there is a wide strip of lowland along the coast. There are several rivers, but only three of them are navigable, the longest being 206 miles.

Rainfall.—The western, southwestern and central provinces of Ceylon are within the "wet area" and have a rainfall of from 100 to 200 inches yearly. The "dry area" consists of the northern, northwestern and southeastern provinces, where the rainfall is only 25 to 75 inches.

Temperature.—Ceylon has a wide range of temperature, varying from a mean temperature of 83.4° F. at Trincomalio on the eastern coast to 60.0° F. at Nuwera Eliya, the health resort in the hills with an elevation of 6,200 feet. The mean temperature of Colombo, the chief port and capital of the island, is 81.0° F.

Population.—According to the census taken in March, 1921, the population of Ceylon is 4,494,974. The most thickly populated province is the western, the next most thickly populated provinces being the southern and central.

The northern, eastern and north-central provinces are very sparsely inhabited and parts of them are covered with jungle infested by elephants, leopards and bears.

The Singhalese form the bulk of the population of Ceylon. The other races are Tamils, Moormen, Burghers (descendants of Portuguese and Dutch settlers), Malays and Europeans.

Ceylon has a continuous record since 500 B. C., the history of her ancient kings having been recorded by Buddhist priests. The ruined cities of Ceylon are second only to the monuments of Egypt in archeological interest and afford proof of a high degree of civilization and progress in art and engineering skill.

Wijeya, the first king of Ceylon, was a prince from northern India, who came with his followers about 540 B. C., conquered the aboriginal tribes and established a kingdom. The Veddahs, a primitive tribe whose numbers are fast diminishing and who inhabit the remote jungles, are said to be descendants of these aborigines.

The Portuguese established themselves in Ceylon in the sixteenth century and ruled some of the maritime provinces till 1656 A. D., when the Dutch ousted them. The Dutch held sway till 1796 A. D., when the British became masters of their possessions in Ceylon.

In the year 1815, A. D., the last king of Kandy, the capital of the hill country which had defied foreign aggression for so many centuries, was forced by his nobles to abdicate in favor of the king of England, and for the first time in its history the whole of the island kingdom passed into the hands of a foreign power.

Present State of the Country

Under British rule the island has prospered greatly. Ceylon is chiefly an agricultural country. Over 4,000,000 acres are under cultivation, the chief products being cocoanuts, rice, tea, rubber, cocoa, cinnamon and other spices.

There are over 4,000 miles of excellent roads, 720 miles of railways and 155 miles of canals.

Education.—About 40 per cent of children of school age are attending schools. A knowledge of English is very widely diffused.

Medical Aid.—There are a large number of hospitals and dispensaries established by the government throughout the island. The indigenous peoples resort to these institutions freely and, unlike Indians, they have no great prejudice against Western medicine. In the villages there are "Vedaralas," or followers of the Ayurvedic system of medicine as practiced in India. Their practices are, however, on the decline.

Public Health.—Until the year 1914 the officers of the Government Medical Department were also the sanitary officers of their districts. However, beyond taking action on the occurrence of outbreaks of serious infectious diseases such as cholera and smallpox, no regular public-health work was done by these part-time officers.

In 1914 a sanitary branch of the Medical Department was formed with a number of whole-time officers, and systematic sanitary work was started in the western province, which is the most thickly populated of the nine provinces into which the island is divided. It was the intention of the authorities to extend the work of the department gradually into the other provinces, but owing chiefly to the outbreak of the Great War, the rate of this extension has been slow. At present, in addition to the work done in the western province, sanitary officers are at work in the central province and in parts of four other provinces, as officers of local bodies.

Except within a restricted area of the western province, delimited when the branch was organized, the sanitary department is not expected to take action in regard to infectious disease unless invited to do so. The scope of the department is thus considerably restricted and its usefulness curtailed.

Sanitary Administration.—For administrative purposes the chief towns of Ceylon are divided into municipalities,



Villager's hut, Ceylon. Note roof thatched with cocoanut leaves, mud walls.

local board towns and sanitary board towns. The rest of the island is classed as "rural areas." Legal powers to enforce sanitary measures are granted to the four local bodies concerned by four special ordinances enacted by the central government. There are besides two other ordinances of general application, known as the Nuisance Ordinance and the Quarantine and Prevention of Diseases Ordinance. All these enactments were framed many years ago and some of them have been amended from time to time. There are certain deficiencies in several of these ordinances, and some of them are out of date and practically dead letters.

In the case of all these enactments, with the exception of the Quarantine and Prevention of Disease Ordinance, the "proper authority" who has the legal right to enforce sanitary measures is a layman. As a consequence, anomalous situations have arisen which have been scarcely conducive to sanitary progress.

In regard to these local bodies the sanitary branch of the Government Medical Department stands in a purely advisory capacity. In the report[1] of the committee appointed by the government to inquire into the question of local self-government four years ago, the following remarks appear in this connection: "There are at present a large number of independent bodies (some of them of doubtful vitality) variously constituted, dabbling in sanitation in the island under several laws, which whilst they have a strong family likeness are not identical, making masses of by-laws for themselves regardless of any common policy, and frequently embarking on expensive schemes without satisfactory advice or control, whilst there exists at the same time a sanitary branch, the officers of which have no status under any law, have no representation under any board dealing with sanitary matters, and have no means of securing that their advice in important matters is followed."

The formation of an independent sanitary department under a comprehensive public health act giving the executive officers of the department full legal powers to enforce sanitary measures has been advocated. Such a department, if suitably organized, manned and administered with sympathy and a knowledge of the prejudices, habits and customs of the indigenous peoples, will have ample scope for its activities in view of the fact that 45.06 per cent of all diseases treated in government hospitals belong to the class of communicable, and therefore largely preventable, diseases.[2] According to the registrar general's report for 1919, 25.35 per cent of all deaths in the island are due to communicable diseases.[3] The three large municipal towns have their own medical officer of health, and their general sanitary condition is fairly satisfactory except in the slum areas. The question of improving these insanitary areas is receiving the serious attention of the authorities and various improvement and town-planning schemes are under consideration. However, it will take many years to carry out these schemes as there are numerous difficulties to be overcome.

The sanitary condition of most local board and sanitary board towns has not received much attention until lately when the outbreak of a serious epidemic of plague in one of them brought the matter prominently before the notice of the authorities. As it was felt that the residents of these towns should have a greater share in the management of their own affairs, the central government has recently passed an ordinance[4] recasting the entire machinery of local government and making provision for the constitution of local bodies both in urban and rural areas with extensive powers. A central council known as the Local Government Board will have general oversight of the work of district councils and will render them assistance. The central council has already been consti-

tuted and has begun its sittings. This extension of the powers of local self-government enjoyed by the people has vast possibilities, and the working of the new councils will be watched with great interest.

The sanitary condition of sparsely populated village areas will have to be watched over by the sanitary department under the old ordinances, which are coexistent with the new.

COMMUNICABLE DISEASES PREVALENT IN CEYLON

These in order of importance are malaria, hookworm infection, venereal diseases, the eruptive fevers, plague and cholera. Of these diseases, smallpox and cholera are not endemic. They have been introduced from South India from time to time, but, beyond a few sporadic cases or a small outbreak, nothing serious has occurred in recent years.



Street scene in bazaar quarter, Colombo, Ceylon

Malaria.—This occurs in varying degrees throughout Ceylon, but is most marked in the less-developed provinces where large tracts of rice-fields cultivated during ancient times with artificial irrigation from vast tanks have been allowed to fall back into jungle. These extensive tanks evoke the admiration of modern engineers. The ancient irrigation schemes are being restored by the British Government and rice-cultivation is being gradually resumed.

For the year 1919 the pyrexia rate (mostly malaria) in the most malarious district was 18,697 per million persons and in several other districts the rate exceeded 12,000.[3]

Beyond two short experimental campaigns against malaria, no systematic preventive measures have been carried out. The government is, however, quite alive to the danger, particularly as it has been proved that artificially irrigated rice-fields in association with jungle are the worst endemic centres of malaria[5]. Recently an entomologist has been appointed to investigate the anopheline fauna of malarious regions and it is hoped that his investigations will be followed by an organized and sustained campaign against this disease which is responsible for much sickness and the backward condition of large tracts in Ceylon.

Hookworm Infection. — The International Health Board, an American organization, in coöperation with the local government, has been conducting a systematic campaign against hookworm infection since the year 1916. As a result of the investigations made it has been ascertained that nearly 99 per cent of the non-shoe-wearing population of all races are infected with this parasite.[6] Simultaneously with the campaign of treatment, systematic construction of privies is being enforced in tea estates and in villages. Great difficulty is being experienced in getting the people to use the privies constructed, as the habit of

resorting to the bush for calls of nature is too deep-rooted to be given up merely at the request of the sanitary authorities. Education in sanitary habits is essential, and with this object in view special attempts are being made to provide all village schools with privies and to train school children to use them.

Eruptive Fevers.—Of the eruptive fevers, enteric is the most important. It is endemic in some of the larger towns and their environs and occurs also in outlying villages which have communication with these towns. Occasionally small outbreaks occur in these villages and special measures have to be taken to check the spread of the disease. Owing to ignorance or poverty, home isolation is not carried out, and contact infection is the chief mode of spread of the disease.[7] Flies come next in importance as carriers of infection, but milk and water are not usually vehicles of infection. The indigenous peoples are in the habit of always boiling milk before use. Antityphoid inoculation is being employed by the sanitary department with success in dealing with village outbreaks.

Smallpox.—As stated before, this disease is not endemic in Ceylon. Compulsory primary vaccination has been in force for many years and a large proportion of the population is protected. In consequence of this, the disease has not assumed serious epidemic form when it has been introduced from India within recent years.

Plague.—This disease appeared in Ceylon about eight years ago and is now endemic in the slum areas of Colombo from which infection is occasionally conveyed to other parts of the island. The infection was introduced into two of the inland towns and the disease assumed epidemic proportions requiring complete evacuation of one town and drastic measures in the case of the other, which was too large for evacuation to be practicable, before it could be stamped out. As plague is endemic in Colombo all towns in direct communication with it are under the constant menace of the disease. Rat campaigns and construction of rat-proof grain stores have been undertaken by the sanitary authorities of several of these towns as a precautionary measure.

Yellow Fever. — Fortunately this scourge does not exist in Ceylon. However, in view of its possible introduction into the East since the opening of the Panama Canal, an extensive mosquito survey of Colombo was carried out by Lt. Col. S. P. Jones, late of the Indian Medical Service, and recommendations made.[8]



Devil dancers. Among the ignorant villagers the belief is that disease is caused by evil spirits which have to be exorcised in order to regain health.

MISCELLANEOUS

Food of the People.—The staple article of diet is rice. In the ordinary dietary of the masses the nitrogenous element is very deficient and the ration is otherwise faulty. This question requires in-

vestigation and the introduction of a well-balanced dietary is a much needed reform. A food and drugs act has been drafted and is under consideration.

Further Problems.—The subject of maternity and child-welfare has been taken up by various non-official bodies interested in social work and the government has promised its support. This work is of great importance in view of the high rate of infantile mortality in Ceylon — 193 per 1,000 live births in 1919.[3]

The training of midwives for work in villages is being systematically carried out in the Government Maternity Hospital in Colombo.

The greatest obstacle the authorities have to face in dealing with infectious disease is the dread of separation from relatives and friends and isolation prevalent among the people. Some firmly believe that the authorities remove patients to isolation hospitals to do away with them as the quickest method of stamping out the disease. The result of this unreasoning fear is that most extraordinary precautions are taken to conceal cases. Patients are removed by night, sometimes by motor cars to distant villages and there concealed. Infection is thus spread broadcast and the authorities have to be very vigilant when dealing with infectious disease.

Recently the original case of an outbreak of smallpox in Colombo was traced, after considerable trouble, to a Hindu temple where the patient had actually been kept concealed behind the image of the god in the temple as the least likely place where the authorities would look for him.

As the bulk of the inhabitants of Ceylon live in rural areas, the problems of public health and future sanitary reform are mainly those concerned with rural sanitation. The inhabitants of towns, particularly in areas long under European influence are more or less accustomed to sanitary discipline, and the enforcing of sanitary measures in towns is therefore not beset with so many difficulties.

Ignorance of the cause and mode of spread of communicable disease and the belief among the village-folk that disease is due to evil spirits which have to be exorcised naturally hamper the activities of sanitary authorities. Education of the villager should therefore form an important part of public-health work in Ceylon.

Even among the educated classes there is a woeful lack of interest in public-health matters. They expect the authorities to do everything for them but render hardly any coöperation. They do not, however, hesitate to criticize the authorities when things go wrong. It is hoped that the inauguration of the new urban and rural districts councils will awaken a sense of responsibility in public affairs among the educated classes and an appreciation of the difficulties of the authorities.

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INDUSTRIAL WASTES IN RELATION TO WATER SUPPLIES

WELLINGTON DONALDSON
Sanitary Engineer, New York City

Read before the Sanitary Engineering Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 17, 1921.

AT THE San Francisco meeting of the Association last September the writer read a paper (AMER. JOUR. PUBLIC HEALTH, Vol XI, No. 3, March, 1921, p. 193) on the subject of trade wastes in relation to water supply, in which was mentioned, in a general way, the effects produced by some trade wastes on water supplies in various parts of the country, as reported by engineers, waterworks officials and health authorities. The present discussion contains little new material, but seeks to emphasize the important relations to public health of the increasing pollution of water supplies by industrial wastes as distinguished from its significance to those charged with the operation of public water supplies, where the increased cost of purification only is affected.

As a matter of fact, it is frequently impossible to differentiate the two viewpoints. There are indeed some water supplies subjected to certain classes of waste pollution, such as suspended solids from ore and coal washing, where the annoyance or burden is taken care of by the waterworks officials, without the general public being aware of the difficulties or being affected thereby, but as a general proposition it may be stated that any industrial pollution which places upon waterworks an unusual burden or difficulty in the way of purification must assume the aspect of a public-health problem.

Take the case of petroleum wastes, such as Mr. Greeley[1] and others[2] have described in connection with supplies at the south end of Lake Michigan. It is not to be presumed that traces of petroleum have any direct hygienic significance to water consumers, yet the flavor or taste imparted to the water supply may be sufficient to cause many people to forsake the safe public supply for drinking purposes, and resort to bottled water of doubtful purity, or to local springs and wells, potentially or actually dangerous. Similar instances may be recalled where water supplies infested with harmless algae were viewed with greatest distrust on account of the unpleasant odor and taste, with a consequent reliance on private sources of drinking water.

In the same category are the salt wastes from oil-well operation. Salt is certainly not harmful. Neither does it affect in any way the efficiency of a purification plant, yet the writer recalls several cases where salt pollution from oil-well operation has greatly affected public water supplies. In one case an entirely new supply had to be secured; in another an auxiliary supply for diluting purposes was provided to keep the chloride content within the established limit of toleration for that particular locality, and in the third case the waterworks suffered a serious loss of revenue due to deflection of consumers to private sources of supply. In the last instance there developed later a serious outbreak of typhoid among the consumers of one of the private supplies. Chlorination odors constitute another familiar example of distrust caused by unpleasant, though safe supplies. The point raised by these examples is that certain kinds of industrial wastes, harmless in themselves, may indirectly but surely affect the public health.

Of more importance is that class of industrial wastes which interfere with proper operation of purification plants, either by impairing the efficiency of the various processes or by imposing an intermittent and irregular load which it is difficult for the plant operators to anticipate and to meet. First may be men-

1. *Journal of the American Waterworks Association*, Vol. viii, 1921, p. 443.
2. McClenahan, W. J., and Rankin, R. S. Water-testing Stations. *Journal of the American Waterworks Association*, Vol. vi, 1919, p. 248.

tioned wastes of an oily, fibrous or pulpy nature which cake or coat the filter sand, giving rise to difficulties in cleaning the sand and creating the liability of filtering at too high rate through portions of the bed. Second, there are certain industrial wastes which on account of their chemical or physical properties act as protective colloids, making the coagulation of the water with aluminum or iron sulphate very difficult or uncertain. Tannery liquors, dye wastes and various other substances, both organic and inorganic, belong in this ill-defined and little-understood class of wastes. Third, there are many industrial wastes which unfortunately react with chlorine or hypochlorite to such an extent as to seriously affect the sterilizing process and the consequent bacterial quality of the supply. The activity of the chlorine may simply be destroyed, as by chemical reducing action, or on the other hand, substitution products may be set up which give rise to highly objectionable taste and odor. Typical of the latter wastes are the phenols contained in the waste from gas houses, by-product coke works, producer-gas plants, etc. Since publication in 1919 of the Milwaukee experiences, considerable attention has been given to this class of waste and there have come to light many similar experiences in other localities. The development recently of satisfactory analytical methods for detecting traces of phenols in the water has been of considerable aid in studying such problems.

Another class of industrial wastes which might be mentioned comprises those substances, mostly inorganic, which remain dissolved in the water without making their presence known through taste and odor, yet may conceivably have cumulative effect on public health by continuous use. Typical of these are metallic salts from metallurgical operations such as lead, zinc, arsenic, etc. The writer knows of one water supply in the Southwest where an issue was raised as to the significance of traces of zinc in the supply, from mining operations on the watershed. The effects of wastes of this kind have not been very carefully studied. The ordinary waterworks laboratory concerns itself mostly with the biological phases of the supply and certain routine chemical tests useful in controlling operation. Where mineral constituents are studied the analyses are usually carried out from the standpoint of the boiler user. The same is generally true of health laboratories which exercise supervision over water supplies. Illustrations of this point are the cases, freshly in mind, of two water supplies troubled with manganese. Manganese is a widely distributed element and its detection is quite simple, yet these two supplies had experienced the trouble for years without recognizing the cause, simply because manganese happened not to be included in the routine water examination. The occurrence of lead in soft water supplies is much more prevalent than supposed, for the same reason.

Considering the whole subject of trade wastes in relation to water supplies, it may be said that the matter has not received sufficient attention in view of its importance in the way of conserving the streams for water supply purposes. Some of the states have delegated adequate power to health organizations for studying and controlling these matters, but in too many states little or no attention is given to the subject, the industries being allowed a free rein in dumping their wastes into the streams, with no attempt at purification. There is great need for correlation of data on this subject.

There is at work now a committee of the American Waterworks Association, of which the writer is a member, which is seeking to collect information as to the extent to which water supplies of this country are affected by industrial wastes, the nature of the trouble caused by different kinds of wastes, and the remedies effective in combating such pollution by modifications in purification methods.

EDITORIAL SECTION

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"SANITARIANS"

The "Conference on the Future of Public Health in the United States and the Education of Sanitarians," held in Washington March 14 and 15 under the auspices of the United States Public Health Service, was notable in many ways. It is perhaps too early to comment upon its results or its potentialities, other than to say that, like another Washington conference, it strengthened faith in the efficacy of the "Conference method," and has paved the way for raising and clarifying standards in many matters of the utmost significance for the practice and administration of public health in the United States.

The Journal wishes to comment briefly on one point which was raised by the conference, namely, that of the designation of health workers. The cover of the official program bore the following note:

> In organizing the following program, it early became evident that a term more adequate and accurately descriptive than the term "health officer" would be necessary for use throughout the program. The term "health officer" is employed usually to include only those employed by a city, county, or state to protect the health of a population group in their official capacities and to enforce certain health laws. The following program is concerned not only with such persons but with those employed in many other capacities in the work of public health in the United States. The most suitable inclusive term now available seems to be the term "sanitarian." It appears wholly adequate, and will be used throughout this program to include all persons who are employed professionally in public-health work.

Governmental administrative officers obviously form only a fraction—although a large and important fraction—of all health workers. It is well that a term should be standardized to cover this group, rather than the indiscriminate use of "officer," "commissioner," "director," "superintendent," "secretary," etc. "Health officer" has been generally agreed upon for this purpose, as noted above, and

as recommended in the Model Health Code for Cities, published by the Association, which says (Note 1):

> Since there are about 60 titles now being used for municipal health officials, the Committee recommends that the words "Health Officer" be adopted as the standard.

For the larger group of professional public-health workers, however, some more inclusive term is needed. In the membership of the conference, for instance, were included deans and directors of schools of public health, hygiene, and medicine, professors of public-health subjects, and other educators, state and city health officers, representatives of semipublic and private health organizations, representatives of various federal agencies, and representaives of the United States Public Health Service. This classification was largely on a basis of organization. Another more functional grouping might specify sanitary engineers, vital statisticians, bacteriologists and other laboratory technicians, nutrition experts, public-health nursing officials, and health education and publicity workers. All these and more are entitled to be considered as public-health workers, and no better single and inclusive term than "sanitarian" has been devised. It is broad enough to cover all the degrees—M. D., Dr. P. H., Ph. D., C. E., or the various grades of apprenticeship leading to those ranks—which one finds in this field. The Century Dictionary defines a sanitarian as "a promoter of, or one versed in, sanitary measures and reforms." The definition of "sanitary" is given as "pertaining to health or hygiene or the preservation of health." It would seem, then, that the word sanitarian is both adequate and accurate.

The JOURNAL is in sympathy with this usage and intends to follow it in its own style. If other health and medical publications will get the habit, and if speakers will observe this practice, the group thereby described will steadily increase in professional esprit-de-corps.

HOME CURE VERSUS "CHANGE OF CLIMATE"

The results of a recent survey of "The Indigent Migratory Tuberculous in Certain Cities of the Southwest," by Miss Jessamine Whitney, statistician of the National Tuberculosis Association, have brought into the limelight a health problem which has existed a long time and which has assumed serious proportions in many Western states.* The Western and Southwestern states have been aware of this situation and have issued justifiable protests. The East is only beginning to become aware of it. The presence in Texas, Colorado, New Mexico, Arizona, California, and other regions of high altitude and salubrious climate, of thousands of consumptives unable to support themselves, either in whole or in part, drawn thither by the ignis fatuis of the restoration of health, is a tragedy to the individual and a dead weight upon the community and state.

In the six cities studied by Miss Whitney, Colorado Springs, Denver, El Paso, Los Angeles, Phoenix, and San Antonio, a total of 7,319 tuberculous persons were cared for by municipal agencies during the year preceding the survey, according to the records of charitable agencies. These are, of course, minimum

*Journal of the Outdoor Life, March, 1922, p. 77.

figures. A length of residence less than two years was used to define "non-resident." In the six cities, 63 per cent of all the indigent tuberculous fell in this "non-resident" class, and even of those classed as "residents" all but 73 in Denver had originally come as health seekers. Classified by sex, 72 per cent of the non-residents were men and 28 per cent women; by race, 49 per cent were of foreign birth, the Mexicans and Russian Jews leading in the order named; by age, one-sixth of all cases fell in the age period 25-29 years.

That this is not an imaginary problem, to be duplicated in any populous center where treatment facilities are good, is proved by a control study made in January and February of this year in Cleveland. There only about 10 per cent of the tuberculous cared for at public expense were non-residents, while in the southwest from two-thirds to three-fourths of the indigent tuberculous were non-residents.

The most significant finding, however, was that six Eastern states were responsible for most of the migration, namely, Illinois, New York, Missouri, Ohio, Pennsylvania, and Michigan. And a further disagreeable fact is that considerably over half of those whose reasons for migration were recorded were definitely advised to go west by physicians.

It is time that the public, both lay and medical, were aroused to the fallacies that underlie these movements. It is possible that a few people of means who suffer from tuberculosis and who can afford the best sanitaria, specialists, and a carefree mode of existence, can recover their health in the Western states (whose advantages none decries). But for the vast majority these things are impossible, and what is more, unnecessary. Light out-of-door employment in the mythical Western paradise is almost impossible to obtain. A tuberculous patient, if he is determined to travel, should take with him sufficient funds to finance treatment and living for at least two years. Few states have public institutions for the free care of non-residents. Many a hopeful case has gone out west—to die miserably.

The Indiana Tuberculosis Association (Indiana followed closely the six states mentioned as chief sources of the migratory tuberculous) has recently issued a leaflet, "Get Well in Indiana." A similar phrase should be made the slogan of tuberculosis and health workers throughout the country. The prime elements in the successful therapy of tuberculosis are rest, good food, plenty of fresh air, peace of mind, and competent medical supervision. These can be obtained in any state in the Union. It goes without saying that every local community should provide adequate facilities to care for its own sick. But in any case the poor man stands a far better chance of getting well at home if he follows a few simple rules of hygiene. Physicians and health officers are particularly culpable who do not use their influence to discourage futile and dangerous pilgrimages. Sanitarians should first of all be realists.

LETTERS TO THE EDITOR

"Life-Saving or Public Health"

To The Editor:

In your March, 1922, editorial (P. 229), "Life Saving or Public Health" you quote "a man of broad experience in non-official health agencies" to the following effect: "It is well known that . . . . less than 10 per cent (of all deaths) are due to communicable diseases."

This is so extraordinarily incorrect a statement, and appears so prominently in your editorial columns that I believe it only right to call attention to it.

The facts are that over ten per cent of all deaths are due to tuberculosis alone; another 10 per cent to pneumonia; a third 10 per cent (I give round numbers) to heart disease, which is chiefly a focal infection end-product. And to these three communicable diseases (infections) alone therefore are due over 30 per cent of all deaths!

Tabulations relating to this very point concerning the causes of death in 1917 (given in the 1918 Mortality Statistics records of the U. S. Census for the registration area) have just been completed by myself.

In round numbers the causes of death were communicable (infectious) diseases in 61 per cent (*not* "less than 10 per cent"!) of the total (1,066,771) deaths. The remaining 39 per cent of causes of death given include a group of indeterminate terms, ("other diseases," and such like) which could not be definitely classified as infectious or not. Eliminating these, 70 per cent of the remaining deaths (i. e., 70 per cent of all those deaths the causes of which were given in recognizable terms) were due to infection. The other 30 per cent were due to such causes of death as external violence, malformation, infancy, old age, chemical poisoning. These are not in the popular mind "diseases." If we eliminate these and confine ourselves to what we usually and popularly understand as "diseases," we find that of 745,-114 persons who died of "disease" in this sense the cause was an infectious disease in 88 per cent (*not* "less than 10 per cent"!).

When we consider that these figures represent only infections terminating in death and that everyone of the adult decedents, including those who did not die of infection, as well as those who did, suffered an average of three and a half infectious diseases before the age of 21, besides one or more afterwards, the real importance of the infectious diseases can be better appreciated.

Gay (*Oxford Medicine* p. 182.) quoting the Med. Dept., U. S. A. tabulations, shows 411 distinct diseases affecting the human family. Of these 411 diseases, 193 are communicable, or 47 per cent. But thus stated, the per cent is unweighted; every disease is considered as counting as heavily in its effect as every other: every disease is assumed to have as many victims as every other. Chickenpox therefore counts as one just as much as tuberculosis does; and leprosy, affecting very few people in the United States, counts one just the same as does pneumonia, which in reality affects many thousands of times as many persons. Now tuberculosis, counted as one disease, forms only ¼ of 1 per cent of the total list; but weighted by the relative number of its victims it accounts for 10 per cent of the total deaths, i. e., is mathematically equivalent to any 41 of the other diseases taken as single units. Properly weighted thus it will be found that communicable diseases yield over 90 per cent of the total physical troubles of the human race, so far as these can be measured by mortality and morbidity reports and estimates.

I believe no small part of the chaos of the modern public-health situation is due to lack of appreciation of the fact that the causes of death and disease are chiefly, overwhelmingly, from sources outside the human body; and that while these include, it is true, external violence, food troubles, chemical poisoning, etc., they include, in immensely greater proportion, the attacks of parasites of all sizes and kinds, chief among which are those which produce communicable diseases.

The gentleman whom your editorial quotes would have been much more nearly right if instead of saying "less than 10 per cent of deaths are due to communicable diseases," he had said that "less than 10 per cent of deaths are due to *non*-communicable diseases." With this slight amendment, his premises and the correlatively amended deductions therefrom would be entirely acceptable.

Hibbert W. Hill, M. D., D. P. H.,
Director, Institute of Public
Health, London, Ontario.

The reply of Dr. H. W. Hill to my editorial in the March issue of the JOURNAL in which Dr. Hill claims that 88 per cent of all deaths are caused by communicable diseases was read with appreciation. Anything that Dr. Hill writes is worth reading, but his line of argument reminds me of an experience which I had recently during a discussion of the great increase in expenditures for public-health purposes and their apparent effect upon mortality. A certain sanitarian of national repute felt that the statistics of increase in public-health expenditures under consideration magnified so-called public-health effort beyond its proper proportion. He proceeded to define the term "public-health expenditures" by excluding expenditures for maintenance of tuberculosis sanatoria and contagious-disease hospitals on the ground that these expenditures were primarily incurred for curative and not for preventive purposes. By doing so the total expenditures were reduced more than 50 per cent. They might have been reduced still further by continuation of this process of "definition."

Dr. Hill's claim that 88 per cent of all deaths are due to communicable diseases follows somewhat the same line of argument. Most mundane things can ultimately be traced back to a common origin. The difference is a difference of definition and of geography. Taking the United States as a whole, the percentage is higher than the present writer stated. In the Southern states it is a good deal higher. In the Northern states it is much lower. If to deaths we add also causes of sickness the situation becomes more striking still. However, published statistics, the present writer believes, are inaccurate in that they fail to give due prominence particularly to venereal diseases as a cause of both sickness and deaths. These diseases are conspicuous for their absence in records of mortality and morbidity.

The point which it was my purpose to make in the editorial above referred to, is not clouded by the percentage of all deaths which may be attributed to communicable diseases, whether we believe that this should be 10 per cent, or 20 per cent, or 30 per cent, or, as Dr. Hill will have it, 88 per cent. It was the influence of public health on life-saving that was the issue. And by implication the writer believes that the achievements of public health are quite wonderful enough when stated in the conservative terms of reality, but that they become absurd when stated in terms of over-enthusiasm. If we are to believe that 88 per cent of all deaths are directly chargeable to communicable diseases, and it is further accepted that the major effort of health departments is directed toward the control of communicable diseases, then the showing made by the public-health work of today is lamentably poor indeed.

The writer intends to emphasize the point that modern public-health work, no matter how efficiently conducted, in reality directly influences but a minor percentage of all mortality and morbidity, and that in view of this fact the wise health officer will give careful attention to the fundamental importance of the private practicing physician who comes in contact with almost all sickness, whether ending in death or not. After all, the number of communicable diseases over which the public-health officer of to-day has definite and specific control are few in number and unimportant as causes of deaths and sickness. Smallpox, typhoid, and diphtheria are the star performers. The control and decline of scarlet fever are little understood. Tuberculosis absorbs the bulk of all effort and funds and provides a very dubious claim. The great field of mortality and morbidity, however, remains largely untouched and uninfluenced by the average type of public-health work in so far as specific and demonstrable results are concerned. It is for this reason that the reciprocal relationship of the public-health officer and the private practicing physician should be recognized, and a proper sense of proportion should be maintained.

SANTÈ

Soil Pollution

TO THE EDITOR:

I was very much interested in the article, "Soil and Water Pollution" in the March issue of the JOURNAL.

I came to the same conclusions after I had made sanitary surveys and bacteriological examinations of 895 wells in the Camp Sherman extra-cantonment zone. I found 147 containing B. coli, and in only 6 of these was I at all sure that the contamination came through the soil. In practically all the other cases of contamination it was a question of poor construction, poor curb or cover, and in the instances where these defects were removed the pollution disappeared in time.

Had the soil been in any other than first-class condition, there would have been a vastly

greater number of wells showing B. coli. I should describe the soil as a fine silty loam.

F. N. CRAWFORD, M. S.,
Formerly with A. R. C. Sanitary Unit No. 12.

"French Bread"

The following correspondence is published as being of interest to bakers and nutrition experts in general.

TO THE EDITOR:

I have just seen in your issue for December 1921, on page 1089, a statement concerning which I would like to have a further word from you. It is in the paragraph commencing with the word "Germany." The statement is made (5th line) that "French bread is unquestionably better than American bread." Will you be kind enough to give me the basis for that assertion? On what, or on whose experiments, is it founded? I am trying to discover in what respects French bread is superior to ours. I am aware of a very widespread opinion that your statement is correct, but cannot discover on what it is based. I will greatly appreciate the information.

H. R. CLISSOLD, San Diego, Cal.

The editor replied to Mr. Clissold as follows:

Replying to your letter of January 11th, regarding the editorial in the December 1921 issue of the AMERICAN JOURNAL OF PUBLIC HEALTH, in which the statement is made that "French bread is unquestionably better than American bread," I have secured the following comments from the writer of the editorial in question.

He says that the claim was not made that French bread is the most nutritious, and in fact that he was not considering food values in the statement any more than he would have had he said "Mocha coffee is the best coffee." Perhaps "most palatable" is closely synonymous with "best," as he used it.

The point is also made by some writers that French bread having a thicker and harder crust than American bread, requires more thorough mastication, and, therefore, promotes digestion.

The writer of the editorial in question has given me the following quotations from several books, the most modern of which are from various dietetic authorities.

Foods and Household Management. Helen Kinne and Anna Cooley, Teachers College, Columbia University, Macmillan, 1914, page 191. Women are urged to visit bakers and "demand bread made under ideal conditions. Such bread is supplied in France."

Boston Cooking-School Cook Book. Fanny Merritt Farmer edition of 1921, p. 46. "Considering its great value, it seems unnecessary and wrong to find poor bread on the table; and would that our standard might be raised as high as that of our friends across the water! Who does not appreciate the loaf produced by the French baker who has worked months to learn the art of bread making?"

American Pastry Cook. Jessup Whitehead. Chicago, 1894, page 131. "It might be hard to explain why this should make a difference in the taste but it does; in this lies the desirability of French loaves." This writer explains why French bread is served at the best hotels in preference to American-style bread.

British Encyclopedia, 11th edition, vol. 7. "French cookery is admittedly the ideal of the culinary art."

No earlier reference to the superiority of French bread is found than Brillat-Savarin's declaration that Limet, in the rue Richelieu is the "first bread-maker in the world."

There is nothing to indicate, of course, that any of these statements are based upon experimental evidence, and in the nature of the case such opinions are largely subjective.

The following is an extract from a letter by Dr. H. E. Barnard, Director, American Institute of Baking, Chicago, commenting on the discussion.

. . . . "Thank you for your reference to French bread. . . . I believe that it is a fact that *the bread made in American bakeries* by the General Baking Company, the Ward Baking Company, by large bakers everywhere, *is far better than the bakers' bread produced in other countries.* The bread made in England, in South America, and on the Continent of Europe, is in a different class and undoubtedly of much poorer quality, both in respect to the grade of flour used, its flavor, and its character as a food. French bread is a different proposition. It is usually made by small bakers by hand. It does not have the flavor of baker's bread for it is not made with milk and contains no shortening and no sugar. It is a product of flour and yeast and water, and

because of the peculiar shape of the loaf and the large amount of yeast used, it is very coarse in texture and has a thick, crisp crust. It is distinctive and delicious. One other reason for its reputation is, as you suggest, that it is served in hotels, usually fresh from the kitchen, and when one has to wait for from a half hour to an hour and a half for his dinner, he has an opportunity to fill up on French bread. Naturally he likes it for it saves him from starvation.

"I have no criticism whatever of our culinary writers. When most of these books which you quote were written, American bread was nothing like as good as it is today, and then we talk about French bread for exactly the same reason that we talk about French millinery and French gowns."

ASSOCIATION NEWS

LIST OF NEW MEMBERS

Proposed for election to the A. P. H. A. March 1 to March 31, inclusive.
Names of Sponsors are set in **Bold Face Type.**
Names of New Members are set in Light Face Type.

CONNECTICUT

Mr. P. E. Bransfield, Portland, Conn.
Miss Katherine E. Haywood, 331 South Main St., Wallingford, Conn., Assistant Serologist (full time).

FLORIDA

B. L. Arms, M. D., Jacksonville, Fla.
E. Luther Stevens, M. D., 45 Orange St., St. Augustine, Fla., Physician.

George A. Dame, M. D., Jacksonville, Fla.
Mrs. Katherine B. Tippetts, The Belmont, St. Petersburg, Fla., Pres. Florida Audubon Society.

MASSACHUSETTS

Mr. Wm. G. Kirschbaum, New Bedford, Mass.
Instructive Nursing Association, Atten. Miss Bertha E. Irons, 202 Coffin Building, New Bedford, Mass.

NEW MEXICO

Mr. Harold F. Gray, Santa Fe, New Mex.
Kuebel A. Bryant, M. D., Roswell, New Mex., Full time County Health Officer.

PENNSYLVANIA

M. P. Ravenel, M. D., Columbia, Mo.
The Gilliland Laboratories, Atten. S. H. Gilliland, M. D., Ambler, Penna.

VIRGINIA

Mr. E. Randolph, Newport News, Va.
Mr. George C. Love, Box 661, Newport News, Va., Chief Engineer, N. N. Lt. & Water Co.

T. J. Robinson, M. D., Warrenton, Va.
Dr. Stephen Harnsberger, Fauquier County Board of Health, Warrenton, Va.

WEST VIRGINIA

Charles E. Gabel, Ph. D., Charleston, W. Va.
Nellie Z. Garess, M. D., Sheltering Arms Hospital, Hansford, W. Va., Laboratory Director.

Laurence M. Rosenfeld, P. D., Philadelphia, Penna.
Mr. J. S. Tamplin, Spencer, W. Va., Laboratory Director, Spencer State Hospital.

WISCONSIN

L. M. Field, M. D., Health Officer, Beloit, Wis.
Miss Irene Slade, 422 Public Ave., Beloit, Wis., Supervising Nurse.

C. A. Harper, M. D., Madison, Wis.
Floyd C. Rath, 27 E. Main St., Madison, Wis., Dairy and Food Inspector—full time.

PANAMA

Dr. Otto Maier, 104 W. 86th St., New York, N. Y.
J. E. Calvo, M. D., Box 56, Panama City, Panama Rep.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 8th of each month for publication on the 20th. Mail to New York office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in New York City. In replying give age, professional training, salary requirements, previous positions held and three or more references.

Wanted: Energetic, experienced medical man to take charge of a county health organization. 18,000 people; area 28 square miles—situated adjacent to Washington, D. C. County used as a demonstration unit for health work for past three years. Best equipped county health unit in the United States. Salary $4,000. Address J. W. Cox, Secretary, State Board of Health, Clarendon, Va.

Dispensary Assistants in Venereal Disease Clinics.—The Section on Venereal Diseases

of the Associated Out-Patient Clinics has offered to act as a clearing house for information regarding opportunities for dispensary assistants in the venereal clinics in New York City.

These positions are both for men and women, graduates and students. In most instances physicians with no special training in venereal disease will be considered. Any physicians who desire an opportunity to learn this specialty should communicate with Dr. Alec N. Thomson, 15 West 43 Street, New York City.

POSITIONS WANTED

Positions wanted announcements will be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 8th of the month.

Wanted: Position as director or assistant director of public-health laboratory, or instructional position in biochemical department of recognized university, by man, age 28, with seven years' experience in teaching, army laboratory and public-health laboratory work. Large initial salary not so much desired as congenial working conditions and chance for advancement. Can furnish best of references. Address V. E. 205, care of this JOURNAL, New York address.

Wanted: Position by a graduate in medicine and public health; experienced in all phases of health work, county, state and municipal, including administrative and educational work. Best of references furnished. Address L. W. 207, care of this JOURNAL, New York address.

Wanted: County health work by trained and experienced health worker, six years in county work. First class references. Address W. H. 206, care of this JOURNAL, New York address.

Wanted: Position as assistant serologist or assistant bacteriologist by young woman, graduate of state college, having had two years each in chemistry and bacteriology. Three and a half years' experience in municipal and state laboratory work. North or West preferred. Address B. N. 208, care of this JOURNAL, New York address.

BOOKS AND REPORTS REVIEWED

Preventive Medicine. *Edited by W. A. Evans, with the collaboration of G. Koehler. In Volume VI of The Practical Medicine Series. Year Book Publishers, Chicago. 1921. $1.75.*

The Practical Medicine Series gives in eight compact volumes a collection of abstracts representing the important progress of the year in medicine and surgery. Volume VI of the 1921 series, dealing with pharmacology and therapeutics, edited by Bernard Fantus, and preventive medicine, edited by W. A. Evans, with the collaboration of G. Koehler, will be of special interest to the readers of the AMERICAN JOURNAL OF PUBLIC HEALTH. In less than one hundred and fifty pages Dr. Evans has compressed an admirable summary of the more important contributions of the year 1921 in the field of public health, a review which should prove of the greatest value to all sanitarians. In a brief introductory section, Dr. Evans refers to the remarkable decrease in the death-rate, particularly from tuberculosis; to the progress of investigations in regard to influenza which tend to indicate that the Pfeiffer bacillus is a secondary invader rather than a primary cause of the disease, and to the tribute paid last autumn to Dr. Stephen Smith whose portrait is reproduced as a frontispiece. The remainder of the volume is devoted to abstracts which are excellently selected, and present the conclusions of the authors clearly and concisely. Among the outstanding tendencies of the year are studies on dietary hygiene, particularly the work of Mellanby on the relation of vitamines to the development of the teeth, progress in investigation of Calmette's highly promising procedure for bovo-vaccination and the remarkable awakening which has taken place in regard to the control of diphtheria by the use of the Schick test and toxin-antitoxin treatment.

C.-E. A. WINSLOW.

Massage and Corrective Exercises. *Albrecht Jensen, formerly in charge of medical massage clinics, Polyclinic Hospital, New York City. New York: Published by the author (Box 73, G. P. Q.)* VTBV. *Pp. 152, fully illustrated. Also furnished in moving picture form.*

The attractive feature expounded in the book is that massage and exercise are combined. There are some 86 illustrations furnished. All the exercises and movements are clearly and accurately described, and we have no hesitation in saying that anyone following the specific directions would probably be benefited to some extent.

Because exercise is known to be good for the health and massage is likewise beneficial, it does not follow that when they are combined they will be doubly beneficial. Every athlete knows the practical value of a "rub-down" after he has made strenuous physical efforts, and many have learned the invigorating effect of massage of the muscles between heats in violent running or rowing races or between halves in a hard hockey or football game. Masseurs become very strong in their hands, arms, chest and shoulders by working over their patients, and undoubtedly many an athlete could improve his own physique by rubbing, kneading, pinching and manipulating his own muscles externally.

All exercise, if sufficient resistance is employed to bring out the full contractile force of the muscles, is a process of massage in itself, pushing on the arterial blood, and aiding the return of the venous blood to the heart and the lymph and fatigue products to the large blood vessels. This active process greatly stimulates respiration and circulation and aids material improvement.

It has been found by physicians and physical educators that the best physiological results are obtained through massage when all the muscles of the patient are soft and relaxed.

It would seem, therefore, that in attempting to take exercise and give massage at the same time we were trying to make nature work at cross-purposes and were neither getting good exercise nor good massage. In fact, the whole method is a compromise, where one is led to expect much and little is realized in the way of development or physiological results.

The author would come nearer the truth if, instead of adopting for the first slogan of his method, "The maximum of effect with the minimum of effort," he had just reversed it, so that it would read: "The minimum of effect with the maximum of effort."

This would not have been so appealing to the "tired business man" or to that other large portion of the community who are always trying to get health and strength without effort. Even this unattractive slogan might catch a few of the same type as the thousands who frequented the health lift parlors of the previous century in response to the alluring catch words of "A maximum of exercise in a minimum of time."

It is very much to be regretted that the physiology of exercise and of massage are not better understood. They are both primary agents of health and well-being. With a little more of this knowledge for a background the fallacy of the Yogis concentration exercises and the special exercises for breathing as set forth in this book would readily become apparent.

DUDLEY A. SARGENT, M. D.

✠

The Vitamines, (*2nd edition*) *Casimir Funk, Williams & Wilkins Co., Baltimore, 1922. Pp. 502. Price, $5.50.*

In 1913 Funk published his book on vitamines which was the first attempt at classifying our knowledge of these nutritional factors and of the disorders brought about by their deficiency. After an interval of seven years we have a second edition of this work. A comparison of these two editions furnishes significant evidence of the growth in this field during this short period. This later edition is replete with the results of recent investigations and contains a bibliography comprising the titles of almost sixteen hundred articles.

The book is divided into three parts, the first treating of the vitamine requirements of plants and of animals, the second, the chemistry, physiology and pharmacology of the vitamines, and the third, the human "avitaminosis" or conditions in which the vitamines play a rôle. It will be seen that a very broad scope is covered by this work, that it should be of interest to the laboratory worker engaged in the many fields which touch on this subject, and to the physician who wishes to obtain an insight into this newer knowledge. The clinical part considers beri-beri, scurvy, rickets, pellagra, sprue and many other clinical conditions which may be associated with a lack of these dietetic factors.

In a subject of this kind which is still in the formative stage, there are, naturally, differences of opinion as regards what should and what should not be included under the term "vitamine deficiencies." For example, some believe that rickets does not belong to this category. Whatever one's opinion in this regard may be, the subject of vitamines has reached a stage where it is incumbent upon every physician and everyone active in the field of public health to have a general knowledge of the status of this important question. There is no book which treats this subject so comprehensively, both from the clinical and the laboratory point of view, as this new edition of Funk's *Vitamines*. It will no doubt introduce this subject to a large body of non-medical as well as medical readers.

ALFRED F. HESS, M. D.

✠

Gout. *Llewellyn Jones Llewellyn, M. B., Senior Physician, Royal Mineral Water Hospital, Bath. With a Section on Ocular Disease in the Gouty, by W. M. Beaumont, Consulting Opthalmic Surgeon to the South-Western Region of the Ministry of Pensions. St. Louis: C. V. Mosby Co., 1921. Pp. 465. Cloth. Price, $7.50.*

This book by the senior physician of the Royal Mineral Water Hospital at Bath is a scholarly presentation of a disease the etiology and treatment of which are now on a scientific basis. Dr. Llewellyn strongly stresses the idea that gout is a definite clinical entity with a definite pathology; and so complex is the classification and differentiation of the various arthritides that "only by holding on grimly to the tophus shall we steer a safe course through all the pitfalls that beset the diagnosis of the chronic arthritides." His classification of gout is simply (1) acute articular gout and (2) chronic articular gout. Concerning the etiology of this disease the author on analyzing his large experience with these cases proposes the theory that gout is an infection, because of the extreme frequency with which infective foci are met with in the victims of gout.

The discussion of this disease is complete in every detail. The history, etiology, morbid anatomy, chemical pathology, clinical aspects, diagnosis and treatment are described at great length. The chapters on treatment are particularly valuable. A word must be said of the style. The book is written in a manner which makes it very pleasant reading—a trait which is found among many English authors.

D. GREENE, M. D.

✠

Applications de la Biologie á l'Art de l'Ingénieur. *Edouard Imbeaux. Paris: Dunod, 1922. Pp. 151. Price, 13 francs.*

This book is interesting not only because it covers in a broad way the applications of biology to the art of the engineer, but because it was written by an engineer for use in an engineering school, namely, l'Ecole des Ponts et Chausées. The authoritative character of the work, however, is vouched for by no less an authority than Dr. A. Calmette, the assistant director of the Pasteur Institute. The subjects covered are those usually found in books on preventive medicine and need not be mentioned in detail. After describing the various diseases due to bacteria and animal parasites and the role of insects and other organisms in the transmission of disease, the author gives details on certain bacterial diseases, and in conclusion has a long chapter on the effect of abnormal atmospheric pressures on human beings. It is an excellent brief presentation of the subject.

GEORGE C. WHIPPLE.

✠

The Red Cross Courier.—This new weekly is the official journal of the American Red Cross, and started the publication of its first volume with January 1, 1922. It is published from the Washington headquarters at a subscription price of $1.00 a year. The *Courier* is a five-column, eight-page sheet on newsprint paper, carries half-tone cuts, and aims to resemble as far as possible a small daily newspaper. Its circulation is chiefly among Red Cross workers, although by no means limited to them. It brings to all those interested in Red Cross activities timely news and information from national headquarters, from the field and local chapters. As health occupies a more prominent place now among peace-time functions of the Red Cross than ever before, the *Courier* is correspondingly of interest to all health workers. The contents of the first few numbers are practical, breezy, and thoroughly alive. They are an earnest of continued success.

PUBLIC HEALTH NOTES

Abstracts by D. Greene, M. D., James A. Tobey and Homer N. Calver.

Daylight Illumination of School Rooms.—The following are a few of the essentials for good daylight illumination of schoolrooms issued by a joint committee of the American Medical Association and the National Education Association. 1. The selection of a site and plans such that neighboring trees and buildings shall in no case rise more than 15° above the horizontal plane of the bottom of the windows. Large trees so close to the walls that they can be trimmed up to clear an angle of 60° with the horizon may be permitted in warm climates where it is important to keep down heat. 2. Placing the windows high enough to permit light from them to fall at an angle of from 15° to 40° in the part of the room most distant from them, shutting off all glare of light below 15°, and placing such windows on all available sides of the room, and especially to the south, where the most light is obtainable. 3. Controlling direct sunlight by light shades that will intercept and diffuse it, drawn out of the way when not needed for this purpose. Placing all dark shades at the bottom of the window, and drawing them up only as needed to raise the level below which glare is excluded from the eyes. Using polished shutters that swing on a horizontal axis to reflect light on the ceiling when obstructions to clear sky render this help necessary.—*Medical Officer,* Feb. 4, 1922, 48, (D. G.).

✣

Ozone in the Purification of Swimming Pools.—The author reports the results of several instances where ozone plants have been installed for the purification of the water of swimming pools. In every case the results have been very satisfactory. He concludes that from his studies as well as those of other investigators it has been shown that the application of ozone to the purification of swimming pools is satisfactory from the practical engineering and sanitary standpoints.—W. A. Manheimer, *Medical Record,* Nov. 12, 1921, 851, (D. G.).

✣

Effect of Tonsillectomy on Nutrition in Children.—Among 1,200 children operated on for diseased tonsils and adenoids at the Rochester Dental Dispensary (Nose and Throat Department) there was 34 per cent malnutrition (7 per cent or more underweight). Reëxamination from 9 to 12 months later showed a reduction of malnutrition to 15.9 per cent. Diseased tonsils and adenoids do not necessarily impair nutrition, as evidenced by 66 per cent of children showing normal weight according to height. Diseased tonsils and adenoids are undoubtedly a factor in malnutrition, as evidenced by the marked improvement in 219 children of the group.—A. D. Kaiser, *Amer. J. Dis. Children,* Feb., 1922, 139, (D. G.).

✣

Reinfection in Tuberculosis.—It is evident, according to Baldwin and Gardner, from what has been presented in the experimental and pathologic study on man and animals that successive infections do occur, and that the first often modifies the course of the later ones. In comparison with the ease with which a primary infection is acquired, the later inhaled and ingested bacilli are resisted more or less strongly by the relative "immunity from infection." In applying these principles to human tuberculosis many evidences of confirmation may be noted. There are reasons to suspect mild infections, both as a quantity and virulence, occurring infrequently, but by a cumulative effect, ultimately arousing the disease process. The earliest exogenous reinfections are probably often well resisted and may produce no noticeable symptoms. Good physiologic functions combined with the immunity from infection tend to ward off further infection after adult age is reached. Should the conditions be otherwise than favorable, or the infection frequent and potent, disease results. The authors discuss the unlikelihood of massive infections by inhalation, and doubt about other ways of reinfection. From the very small quantities taken in at any one time and the slow development of the disease they are inclined to the theory of cumulative infection during childhood and youth. The majority of individuals who are to develop pulmonary tuberculosis for the first time after 20 years of age have already acquired it to a degree. Were it pos-

sible to detect these potentially diseased cases, who may or may not break down, there would be but a small percentage not accounted for among the victims of tuberculosis in civilized countries. It is virtually impossible to associate many cases of clinical tuberculosis in adults with a recent exogenous source of infection, except under family exposure. Even in family disease, as is well known, the patient often develops the first recognized symptoms years after the death of the relative. The town or city dweller is a survivor in the sense that he has reached maturity in the face of more or less inevitable exposure to human and bovine infection. The lesson to be learned and applied is that hand in hand with efforts to safeguard the young from infection, more attention should be paid to safeguarding both young and old from disease. Without sputum and dairy hygiene the supply of dangerously infected young people will be kept up; without earlier diagnosis, education and favorable conditions of life for the prospective victims clinical tuberculosis will continue at an irreducible minimum.—E. R. Baldwin and L. U. Gardner, *Amer. Rev. of Tuberculosis,* Aug., 1921, 429, (D. G.).

✣

"Broadcasting."—Three times a week public-health messages are being sent out by the U. S. Public Health Service from Naval Laboratory Air Craft Station NOF, Anacostia, D. C., whose signals are well known to wireless (telephone) operators. These messages have been heard as far west as Kansas.

This method of "broadcasting" public-health messages marks a distinct step in health education. It is an accepted fact in public health that measures of control cannot advance far in advance of public opinion. The solution of public-health problems is largely tied up with the problem of creating public opinion that is favorable to proper measures of disease prevention and control. A part of the public has been reached through newspaper and magazine articles, lectures, talks, institutes, fairs, conferences, motion pictures, etc. But some have not been reached at all.

The wireless operators of this country, amateur and professional, are ninety-five per cent men and boys—and they are ninety-five per cent the certain "definite few" who cannot be reached by any of the ordinary methods used in public-health education. It was estimated before the service was started that 6,000 amateur operators alone would be reached with every message, but this estimate has proved to be entirely too conservative. The fact that these messages are really "getting over" is well proved by the answers that come back to "NOF" from thousands of operators who range from extreme youth to railway magnates, from the illiterate to bank presidents.

The idea of the radio service came from a layman in public-health work, Louis Jay Heath, assistant director of educational work, Division of Venereal Disease, U. S. Public Health Service.—Ann Doyle, R. N., *The Public Health Nurse,* February, 1922.

✣

The Modern Public Health Movement.—From antiquity to very modern times, public-health laws and administration have been largely attempts to ward off the ever-recurring pestilences by pseudo-scientific procedures, in which the basic element of rational application of knowledge obtained by observation was intermingled with superstitions. The only effective result was quarantine of epidemic cases.

The entire structure of modern public and personal hygiene rests upon certain fundamental problems which were as common to the paleolithic man as to us of the present day and to which he reacted by instinct rather than reason. These problems are mainly the following: the problems of food, shelter, defense and propagation.

Various dates have been assigned as marking the beginning of modern conception of public health, but it can scarcely be said to go back of Pasteur's time, approximately the same era as our own civil war. The value of the discoveries of Pasteur, Lister, and Koch are inestimable to modern developments of public health. This opening era of scientific discovery in the nature, cause, and prevention of disease meant the escape of civilized man from the old doctrine of fatalistic acceptance of disease and pestilence as a manifestation of divine wrath.

It is with extreme slowness that it is understood that the public-health development is a tremendous community and national asset. Public health means the greater conservation and multiplication of

our vital assets, as contrasted with our material assets. Entirely aside from the altruistic and humanitarian aspects of the movement, the intelligent fostering of the public health is the most fundamental of all varieties of national insurance. That is, the more of us who live to the productive stage of life, the greater the prosperity of the community.

Whereas it is unfair to claim that all the gains in life prolongation, bettered physique, and greater physical comfort which we enjoy are due exclusively to developments of public-health administration, for higher standards of living and greater development of food production resources, have a large influence on the death-rate, it is absurd to minimize the results directly accruing from the carrying into effect of the principles logically unfolded from Pasteur's discoveries. At least 15 years more of active enjoyable existence could be added to the average lifetime by the intelligent application of sanitary laws already well understood.

To the beneficent results of modern water supply and sewage may partially be traced the persistence of the idea that filth in and of itself can create disease, especially communicable disease.

It is only lately that we have realized that while the engineer's transit and the scientist's microscope have furnished contributions to the cause of public health, nevertheless the great field for future development is in the enlightenment of the average man, woman, and child. There is enough knowledge extant to prolong the average human life and make it more comfortable, but the problem is to put that knowledge to practical use.—Eugene R. Kelley, M. D., *The Commonhealth,* Vol. 8, No. 6, p. 259.

✣

Cardiac Diseases in Adolescents and Adults.—While records, as pooled by 37 life insurance companies, show 1921 to have been the healthiest year in the United States and Canada, organic disease of the heart has shown an appreciable increase. Today heart disease and tuberculosis are the outstanding public-health problems in America.

The rôle which heart disease has played in causing poverty and adversely affecting the lives of entire families because of the crippling of wage-earners constitutes a serious factor in the lives not only of the several million sufferers but of their dependents as well. That so great an aggregate of disability should result from preventable infections, or to conditions so open to social correctives, is a blot upon public-health records.

Heart diseases result from focal infections and from the various infectious diseases common to childhood and adolescence. Cardiac diseases are intimately related to syphilitic infection. The prevalence of cardiac defects for certain age groups is almost twice as high for colored people as for white people. Long continued physical, mental or nervous strains, and excesses of various kinds which induce fatigue, may act as direct or indirect causes of cardiac disease.

What particularly concerns us as a public-health problem is the early recognition of cases so that we may shield such persons from physical and mental strains as far as possible and prevent their exposure to subsequent infections.—Louis I. Harris, M. D., *The Nation's Health,* January 15, 1922.

✣

Proper Waste Disposal in Relation to the Fly and Disease.—The problem of waste disposal is so to dispose of all kinds of waste as to prevent fly-breeding and at the same time conserve whatever values are inherent in the waste in such manner as to defray a large part of the costs of waste collection by converting the waste into materials of commercial value. These problems are not confined to the city itself. They concern the personal habits of the entire population. Although the whole problem is one of the public welfare, this does not diminish the individual responsibility.

Some of the essential facts in the matter are the following:

1. Communicative diseases have a causative organism.

2. The causative organisms of all intestinal diseases, at least, will be voided in human or animal waste.

3. Human or animal or other waste is the source of the majority of flies found about habitations.

4. Fly larvae breeding in waste take into their bodies whatever organisms are present and often harbor these organisms until they have become full-grown flies.

5. Adult flies alighting on waste take up on their feet and in their food disease organisms.

6. Disease organisms can live in flies for many days.

7. Flies deposit from the filth on their feet or in a speck of their excrement the disease organisms which they are constantly picking up.

8. Flies can fly for miles.

9. A single case of intestinal disease where open privies prevail will give rise to a myriad of flies which will spread the disease germs over the countryside.

10. Any substance in which flies breed or from which they can pick up disease germs is dangerous and a public menace.

Some of the problems of waste disposal may be stated as follows:

1. The city sanitarian must watch the city milk supply to its ultimate source. He must be constantly in touch with the health situation in the surrounding territory.

2. The sewage disposal of the whole countryside has a direct bearing on the health of the city inhabitants.

3. An open privy is a menace to the health of all the people for miles around.

4. Every manure pile is a source of millions of disease carriers.

5. Moist, manure-laden refuse in gutters gives rise to flies.

6. Every garbage pail is a focus for flies. Free municipal garbage removal is a necessity.

7. Every barn, livery-stable, pig-pen, chicken yard and dove-cote is a potential source of flies.

8. Packing-houses, canneries, breweries, and many other industrial plants create great quantities of waste in which insects breed.—W. Dwight Pierce, Ph. D., *The American City*, February, 1922.

✣

A New Type of Sewage Screen.—Two screens which are in operation at the sewage treatment plant in Plainfield, N. J., and which are doing good work, are of a newly-designed, fine-mesh type which combines great strength and rigidity with efficiency and reliability of operation. The screen surface proper is a cylinder made either of perforated plates or a straight wire screen. The straight wire screen consists of bronze wires stretched tight on a bronze frame, with a clear opening between the wires of $\frac{1}{32}$-inch or less.

The sewage enters from the outside of the cylinder and is discharged at one end from the inside. Between 90 and 95 per cent of the total screening area is submerged, or, in other words, is effective. Seal rings separate the clarified from the raw sewage. The sewage screen is cleaned by revolving brushes which always travel in line with the openings but never across them. This feature and the small openings made possible by the straight wire screen insure the removal of all but finest solids in suspension.

One of the screens at the Plainfield plant is removing 4 cubic feet of sludge from 70,000 gallons per day—a rate of 57 cubic feet per 1,000,000 gallons.—*The American City*, January, 1922.

✣

A New Film on the Hygiene of the Mouth.—A motion picture production of interest to all those interested in dental hygiene, "Your Mouth," is being distributed through the United Cinema Company, 50 East 42 Street, New York City.

"Your Mouth" has been written and directed by Edwin N. Kent, D.M.D., formerly director of extension lectures and of the army and navy educational service of the National Mouth Hygiene Association. It has been under preparation for a period of two years, and sets forth the subject in accordance with the theories and suggestions of more than a hundred specialists in many branches of medical practice and educational work.

✣

Open Channel Drainage for Malaria Control.—One of the most practical means for the physical control of malaria is the prevention of the breeding of the Anopheles mosquito. This has been done with considerable success for some time by different methods, such as the use of oil, larvacides, subsoil tile drainage, and open ditches.

For open-ditch drainage, it is necessary to know the possible breeding places in a given area, the nature of the soil, the kind of vegetation, and the rapidity of its growth, and to have such rainfall data as are necessary for calculating the average run-off. When this information has been secured the engineer is ready to map out the drainage system and to decide on the number, size, type,

and grade of the ditches to secure a rapid run-off.

Low, flat-lying areas offer the most serious drainage problems. It is oftentimes necessary to resort to ditching and the use of tide-gates for the purpose of concentrating the water with no actual attempt to secure a complete run-off.

The author describes the various types of ditches that are best adapted to different conditions, their length of life, and points to be watched in their construction, such as increasing or decreasing the velocity of a stream, maintaining a permanent grade, and methods of filling.—Fernald E. Hulse. *The American City.* Vol. xxvi, No. 3, March, 1922.

✠

Disaster Sanitation.—Emergency work in disasters must include health and sanitation. When a disaster has disrupted the water supply and the sewer systems, when many people are gathered together in large crowds under the abnormal conditions existing after a disaster, there is great danger of contagious disease spreading rapidly through the congested sections; and an urgent duty is the proper control of contagious disease by competent health experts who adopt temporary regulations and initiate vaccination on a large scale, usually against typhoid and smallpox. Sanitary squads either under the direction of the municipal authorities (which is usual), or of the relief organization (which is exceptional), become actively engaged in the removal of dead bodies, both human and animal, and proceed to the important task of the erection of latrines located at points of congestion. Sanitary engineers are called in from state health departments with emergency outfits for disinfecting the water supply, and act as technical advisers for the many sanitary problems arising, such as the sanitation, water supply, and drainage of the camp colonies. Visiting nurses are sent among the families of the flood sufferers to give important advice and assistance to mothers and children, and act as liaison between the homes and the temporary hospital facilities. The Red Cross in Disaster, Edward Stuart. *Red Cross Courier.*

(J. A. T.)

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An Analysis of Public Accidents.—Report of Committee on Public Accident Statistics, National Safety Council, Chicago, Illinois, September 28, 1921, p. 1-9. Accidents are divided into three classes: (1) public, (2) industrial, (3) home. A summary of over 90,000 claims paid during 1916-20 by a leading accident insurance company shows the percentage for each case as (1) 46.6, (2) 37.8, and (3) 15.6. A consideration of accidental deaths for the entire United States in 1919 shows the leading causes were falls (due to public, home and industrial), automobile (due to public), burns (due to home), railroads and drowning (due to public). Tables are included with detailed information as to causes and number of accidents. *Public Health Engineering Abstracts,* March 18, 1922. *(J. A. T.)*

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Smallpox.—The Department of Commerce, through the Bureau of the Census, announces that there have been very few deaths from smallpox in recent years. Since the beginning of annual compilations in 1900 the highest rate from this cause in the death registration area of the United States was 6.6 per 100,000 population in 1902, while in 1903 it was 4.2 and in 1904, 2.1, since which time the rate for the registration area has never reached 1 per 100,000 population. Much higher rates in certain states and cities, however, clearly show that the danger of smallpox in an unvaccinated population must not be lost sight of. The high rate (9.2) in 1920 in Louisiana should serve as a warning.

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Tuberculosis Among Indians.—Dr. George M. Kober, Chairman of the National Tuberculosis Association Committee on Tuberculosis among the Indians, has prepared a questionnaire which has been sent out to each state where there is an Indian reservation. The questionnaire aims to secure basic information with regard to tuberculosis among Indians and the amount of data existing on the subject. With this material in hand the committee proposes to conduct a more thorough study of each reservation.

✠

British Registrar Reports Comparative Infant Mortality Rates.—The Registrar General of Great Britain reports that Christiana had the lowest death-rate for babies under one year of all large cities during the third quarter of 1921, the rate being 33 per 1,000 birth. Amsterdam, Stockholm, and

Copenhagen rank next with rates of 42, 47, and 48 respectively. The rate for London was 93, and Berlin 146. The highest recorded rate for any city was 630 in Bombay, India.

✠

The St. Louis Meeting of the American Medical Association.—The arrangements for the meeting places for the session of the A. M. A., which is to be held in St. Louis May 22-26, are singularly fortunate and convenient. The district in which the meeting is to take place is easily accessible from all directions by street car or otherwise and not more than fifteen minutes' street car ride from the most distant hotel. The grouping of the meeting places is so compact that one can walk from the registration building to the farthest hall in ten minutes or less; from section to section is a matter of from one to five minutes.

The opening session will be held in the main hall of the Odean, the home of the St. Louis Symphony Orchestra. This auditorium seats more than 2,000 people. The Section on Preventive Medicine will use the large hall of the Musicians' Club, next door to the building of the St. Louis Medical Society.

The St. Louis profession is preparing for an unusual attendance; hotel reservations are coming in rapidly, but it is purposed that even the late comer shall be comfortably housed. The wise traveler, however, makes his reservation as early as he finds it possible. Dr. M. B. Clopton, 3525 Pine street, St. Louis, is chairman of the Committee on Sections and Section Work.

✠

Convention of Nurses to Be Held June 26-30.—The three nursing organizations, namely, the National Organization for Public Health Nursing, the American Nurses Association, and the National League for Nursing Education, will hold a consolidated biennial meeting in Seattle during the week of June 26-30. A special railroad rate has been arranged and there will be stop-overs at several points of interest en route.

✠

Conference of State and Territorial Health Authorities.—The twentieth annual Conference of State and Territorial Health Authorities with the United States Public Health Service which will be held at Washington, D. C., on May 17 and 18, 1922. Important state and national health matters will be discussed at this conference.

✠

National Hospital Day.—The U. S. Public Health Service again invites the public to visit the hospitals in their vinicity as guests, and to familiarize themselves with their atmosphere, methods, aims, etc., on National Hospital Day, Friday, May 12, which is the anniversary of the birth of Florence Nightingale. Anyone desiring suggestions for a program, or additional information may apply to Matthew O. Foley, Exec. Secty., National Hospital Day Committee, 537 S. Dearborn St., Chicago. These services are free.

✠

The National Conference of Social Work.—The forty-ninth annual meeting of the National Conference of Social Work will be held at Providence, Rhode Island, June 22-29, with headquarters at the new Hotel Biltmore.

This year all of the meetings of the Conference proper will be held either in the mornings or evenings, leaving the afternoons free for meetings of kindred groups, for visits to various institutions situated near Providence, and for trips to near-by summer resorts and other places of interest contiguous to the city.

A large number of leading organizations will hold meetings in Providence either immediately prior to or during the week of the National Conference meeting. The annual meeting of the Conference draws to itself not only the large membership of the Conference but members of a large number of organizations who select the time of the annual meeting of the Conference as the occasion for meetings of their organizations, and it is the presence of hundreds of members of kindred groups which adds greatly to the value of the annual meetings of the Conference.

Some of the subjects to be discussed in general session meetings are "The Changing Fundamentals of Social Work;" "The Family as a Factor in Social Evolution;" "Neglected Fundamentals in Children's Work;" "Underlying Concepts in the World Movement for Health;" and "The Functions of Public and Private Agencies in the Social Work of the Future."

The program for Division III, under the chairmanship of Dr. D. B. Armstrong, is as follows:

HEALTH

Section Meeting I

The plan for Federal Reorganization.

a. The Social Content of Federal Reorganization.

b. The Program of the Welfare Division of the Post Office Department.

Section Meeting II

Industrial Hygiene.

a. Health and Medical Work in Department Stores.

b. The Program of the American Association of Physicians in Industry.

Section Meeting III

Health Experiments and Demonstrations.

a. The Child Health Demonstration in Mansfield, Ohio.

b. National Health Council and Common Service Committee.

Section Meeting IV

The Art of Living.

a. Food and Health.

b. The Healthful Home.

c. Health Habits.

Section Meeting V

Social Hygiene and Venereal Disease Control.

✣

Important Meetings Abroad.—The annual meeting of the British Association will be held in Glasgow on July 21-28 next, in the university buildings. The first three days of the meeting will be taken up by the annual representative meeting, and on the evening of July 25 the president, Sir William Macewen, will deliver his address. The president of the Section on Public Health is Dr. A. K. Chalmers of Glasgow.

The Royal Institute of Public Health will hold a congress in Plymouth from May 31 to June 5. In addition to conferences on various matters there will be four sections: (1) state medicine and municipal hygiene; (2) naval, military and air; (3) bacteriology and biochemistry; (4) women and public health. The Harben lectures will be given during the meeting by Dr. T. Madsen, director of the State Serum Institute, Copenhagen. *Science.* Vol lv, No. 1414. February 3, 1922.

✣

Course in Rehabilitation and Reëducation of the Handicapped.—Harvard University announces a course in the Rehabilitation and Reëducation of Handicapped Persons, during the summer session, July 10 to August 19, 1922, under the direction of W. I. Hamilton, assisted by specialists.

This course is offered as a broad basal course for those who are working with, or intend to work with, the handicapped. Among those who should find it profitable are occupational aides in hospitals, teachers of the handicapped, "after-care" nurses, workers in employment bureaus for the handicapped, agents of state rehabilitation services and of the Veterans Bureau, and others interested in rehabilitation as a part of a constructive social program.

✣

Czechoslovakia Has a National Council of Social Hygiene.—Dr. Hynec Pelc, Secretary of the National Council of Social Hygiene of Czechoslovakia, has sent to the National Health Council a number of charts showing the activities and organization of the association in Czechoslovakia which corresponds to the National Health Council in this country. These charts show the number of local branches of the organizations, with the Czechoslovakia Red Cross in the lead with 320 and the others in the following order: Maternity and Infant Protection, Czech Child Welfare Association, Masaryk League Against Tuberculosis, Czechoslovak Prohibition League. Another chart shows the number of members of the organizations as follows: Czechoslovak Red Cross 112,000, Czech Child Welfare Association 51,000, Masaryk League Against Turberculosis 19,000, Prohibition League 2,500, Association for Combating Venereal Diseases 286. The income and state subsidies of the organizations are shown on a chart and the income and expenses are also depicted on other charts. A calendar of drives prepared by the associated organizations completes the set. The reports which are in Czech look as if they might be interesting. We have not yet read them, however. *(J. A. T.)*

✣

"Clean Up and Paint Up—and Keep It Up."—The National Clean Up and Paint Up Campaign Bureau, which has been established since May 1, 1912, now has its plan of organization utilized by more than 7,000 American cities and towns every year. This campaign differs from the ordinary clean-up week in that it is a continuous and real campaign waged under the nationally accepted slogan "Clean Up and Paint Up—and Keep It Up."

The health officers' opportunity in this campaign has been recognized and utilized by them in thousands of communities. They know the power of paint as a means and an incentive to orderliness and cleanliness in homes and neighborhoods, and hence its effect upon the public health.

The aim of this campaign is to make the community clean, healthy, thrifty, safe and beautiful, and in attempting this it enlists the aid of the city officials, street commissioner, health officer, police and fire departments, chamber of commerce, the schools, newspapers, business men's and women's organizations. Information as to the nature of the work may be obtained from the National "Clean Up and Paint Up" Campaign Bureau, Pontiac Building, St. Louis, Mo.

✣

National Health Council Holds Quarterly Session.—The quarterly meeting of the National Health Council was held March 13 in the American Red Cross Headquarters in Washington, D. C. Representatives were present as follows: Dr. Livingston Farrand, President of Cornell, and W. Frank Persons, representing the American Red Cross; Dr. Lee K. Frankel, American Public Health Association; Dr. W. F. Snow, American Social Hygiene Association; F. J. Osborne, American Society for the Control of Cancer; Dr. S. J. Crumbine and Dr. A. T. McCormack, representing the State and Provincial Health Officers of North America; Courtenay Dinwiddie, National Child Health Council; Dr. Frankwood E. Williams, National Committee for Mental Hygiene; Miss Elizabeth G. Fox, National Organization for Public Health Nursing; Dr. Charles J. Hatfield, National Tuberculosis Association, and Surgeon General H. S. Cumming. There were also present Dr. D. B. Armstrong, Executive Officer of the Council, and James A. Tobey, Washington Representative.

The Council was authorized to participate in a Health Week to be held next fall. The executive officer reported that he had conducted a study of state health coördination in Ohio and he was instructed to take further steps for coördination in that state and also to make studies in other states such as Maine, Kentucky, Illinois and California.

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The Child Health Organization Weighs Itself.—In an attractive twelve-page pamphlet entitled "The Child Health Organization of America Weighs Itself" is found an interesting report of the work of this organization from January 1—December 31, 1921. The Child Health Organization aims first to discover the best modern thought on the growth and training of children, and then to interpret this thought to the understanding of the man on the street and to the imagination of the child in the schoolroom. The work has been of two distinct types: the spectacular, designed to capture interest, and the follow-up. Health has been taught as a positive rather than a negative subject, with the emphasis placed on the formation of health habits rather than on the teaching of facts about health.

During the year the Health Clown and his company gave 965 performances to more than half a million children. In nine and a half weeks alone in California the Health Fairy gave 66 demonstrations and 61 conferences. A national exchange of health posters made by children has been established. Almost 800,000 pieces of literature have been sold during the year, and with the opening of the school year orders for educational material increased 121 per cent over the previous year's record.

✣

1922 Program of the Maternity Center Association.—The aim of the Maternity Center Association is to save the lives of the many mothers and babies who die of preventable causes; to save mothers from the chronic illnesses and invalidism so often needlessly caused by childbirth, and to see that babies are given the care which will insure their health, and to find out exactly what such care is.

To accomplish this, the Association carries on two main activities. A part of the 1922 program follows:

1. Instruction of expectant mothers in the need for, and the best methods of prenatal care.
   (a) Doctors' clinics to be maintained in 15 centers operated by other organizations.
   (b) Complete nursing service to be provided in connection with one nursing center in New York City.
   (c) Thousands of prospective mothers to be reached through a series of twelve pamphlets giving a complete course on maternity care.

(d) Routines for prenatal care, in printed form, to be furnished to other nursing organizations throughout the country.

2. General educational campaign, to teach the public the vital importance of maternity care, through newspaper and magazine articles, legislation, etc.

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Methodist Hospital and Home Workers Confer in Chicago.—Doctors, nurses and superintendents of Methodist Episcopal hospitals and homes spent Wednesday and Thursday, February 15 and 16, in conference and discussions concerning the problems and progress of their work. They met under the auspices of the National Methodist Hospitals and Homes Association, which was organized in 1919 by a little group from this host of workers pioneering the way toward a better recognition of this type of work by the Methodist Episcopal Church.

Papers were read on the need of medical missionaries in rural sections to build up the health of the people, the need of visiting nurses in the homes, the aim to raise the standard of all the institutions connected with this church, nurse training for the hospitals, and many other subjects.

Dr. Willard C. Stoner of St. Luke's Hospital, Cleveland, Ohio, read a paper on "The Hospital Problem in Relation to Modern Medicine," in which he spoke of the advances in scientific medicine in the past twenty years, of the greater desire for hospitalization for surgical and obstetric cases, the hospitals being so much better equipped than the home for either diagnosis or the care of serious cases of any kind. He brought out the point that rural hospitals are greatly needed, because it gives the country people access to better medical advice than can be given by the rural doctor, for rural practice is not inviting enough to draw the best of the profession as a general thing.

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On an Adequate Salary for Health Officers.—Health officers interested in adequate salaries and their standardization will be interested in the controversy which has arisen in England over the Manchester appointment. Recently an advertisement appeared in a lay newspaper that it is proposed to appoint a medical officer of health for the city of Manchester at a salary of £1500 per annum. This advertisement has been refused insertion in the medical journals. Commenting editorially on this situation the *Medical Officer* (Jan. 21, 1922, p. 21) says:

"It is not only the Public Health Service that must suffer if the value of the whole-time services of a picked leader in any branch of medical practice can be assessed at £1,500 per annum. This is recognised by the British Medical Association, who are using the whole weight of their organisation to secure a revision of the Manchester salary. Before this article is published, the council of the Society of Medical Officers of Health will have pledged the honour of every one of their constituents, that no member of the Society will accept the Manchester post until the terms of the appointment have been approved jointly by the British Medical Association and the Society of Medical Officers of Health. Every medical official will rejoice that the B.M.A. is able to give its whole-hearted support in this matter, for the public will realise that the representative bodies of a great profession do not coöperate for any purpose unless they are convinced that they have an honourable and just cause for action. The Society of Medical Officers of Health have pointed out that the basic payment fixed by Manchester, a city of 750,000 population, will be quoted all over the country as an index figure in the calculation of medical salaries by other local authorities. If the Manchester appointment is filled at £1,500 it will reduce the market value of medical services in every county, borough and district of England, Scotland and Wales. The Public Health Service must, therefore, refuse to fill this post, or cease complaining of the inadequate remuneration of medical officials. If members of the Service are loyal to one another and true to themselves there will be no candidates for the Manchester appointment until the requirements of the British Medical Association and the Society of Medical Officers of Health have been met."

The London correspondent of the *Journal of the American Medical Association* (Feb. 25, 1922, p. 595) in commenting on the situation, explains that the town clerk of Manchester receives $11,250 a year and the city engineer $15,000. The action of the British

Medical Association was taken not because the salary offered did not conform to a prescribed scale, but because the post was so important. (*D. G.*)

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The Healthiest Year.—According to the records of thirty-seven insurance companies, comprising figures for 27,000,000 lives, the year 1921 was the healthiest year during the history of United States and Canada. Mr. Robert L. Cox, vice-president of the Metropolitan Life Insurance Company, presented an analysis of these records for the first ten months of the year 1921 at a convention in New York of the Association of Life Insurance Presidents. These companies transact about 80 per cent of the life insurance business of this country, and showed 184,860 deaths during those months against 205,941 deaths during the same ten months of 1920.

A reduction in pneumonia and influenza cases accounted almost entirely for this favorable showing, pneumonia causing only about half as many deaths in 1921 as in 1920. Tuberculosis was responsible for one in every nine deaths as against one in four ten years ago. The number of suicides and homicides has increased, due probably to the reactions of the war, business depression, unemployment and other phases of economic disturbance. The percentage of automobile accidents was 15 per cent higher than in 1920.

Mr. Cox called special attention to the fact that about 28 per cent of the deaths are caused by cerebral hemorrhage, organic diseases of the heart and Bright's disease, ailments in the main of advanced life, which percentage will not decrease while the tension of present-day life continues. Because of more careful diagnosis, the number of deaths reported as due to cancer has increased.—*Proceedings of the Fifteenth Annual Meeting of Life Insurance Presidents,* Dec. 8 and 9, 1921.

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Mineral Composition of the Water Supply of Seventy Cities in the United States. The paper develops the fact that statistics showing the mineral composition of the water supplies of even the larger cities in the United States have not been compiled heretofore, although the matter is of considerable interest, particularly to physicians and to the traveling public. Seventy analyses obtained from city officials have been reduced to a common basis for comparison and tabulated. Of the cities mentioned, Atlanta, Georgia, has a water supply which contains the smallest amount of dissolved mineral matter, while Oklahoma City, Oklahoma, has a water supply which contains the largest amount of dissolved mineral matter.—J. W. Sale and W. W. Skinner, *Science,* December 23, 1921, Vol. liv, No. 1408.

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LEGISLATION—FEDERAL

(From bi-weekly reports of the National Health Council, February 16-March 16, 1922.)

PROGRESS ON MATTERS PREVIOUSLY CONSIDERED

Reorganization of the Federal Departments:

The plan for a comprehensive reorganization of the federal departments, including the formation of a new department of public welfare, was submitted to the President six weeks ago by Walter Brown, chairman of the Joint Congressional Committee. It has been announced that the President is giving this matter personal attention. In fact, the administration is committed to such reorganization and to a welfare department, having considered the latter as important as the budget system. The budget system is already in successful operation, but there seems to be doubt in the minds of many as to whether the welfare department will ever materialize. The fundamental difficulty in the whole reorganization scheme is that the cabinet officers are opposed to surrendering authority over bureaus already within their respective jurisdictions. It is probable that the various health functions of the government will remain in status quo for some time.

H. R. 10734.—Salaries in the Army, Navy, and Public Health Service. Introduced on March 6, 1922 by Mr. MacKenzie. Referred to the Special Committee on Adjustment of Pay. Also introduced in the Senate by Mr. Wadsworth and referred to Special Committee.

This bill follows the terms of the report of the Joint Congressional Committee exactly. In drafting the bill the Committee took into consideration three essential points: 1. A plan by which pay would be given according to grade and length of service. 2. The effect on living conditions of the individual officer, with respect to rank and length of service. 3. The effect on the Army, Navy, and Public Health

Service during the next fifteen and thirty years.

The following table summarizes the provision for base service pay of officers. In it we use the title of officers in the Public Health Service with the corresponding army grade in parenthesis:

Assistant Surgeon General (Colonel)	
Over 26 years' service	$4,000
First appointment above captain	4,000
Appointed under Sec. 24, Act June 4, 1920	4,000
Less than 26 years' service	3,500
Senior Surgeon (Lieutenant Colonel)	
Over 30 years' service	4,000
Over 20 and less than 30 years	3,500
First appointment above 2d lieutenant	3,500
Appointed under Sec. 24, Act June 4, 1920	3,500
Less than 20 years	3,000
Surgeon (Major)	
Over 23 years' service	3,500
Over 14 and less than 23 years	3,000
First appointment above 2d lieutenant	3,000
Appointed under Sec. 24, Act June 4, 1920	3,000
Less than 14 years	2,400
Past Assistant Surgeon (Captain)	
Over 17 years' service	3,000
Over 7 and less than 17 years	2,400
First appointment above 2d lieutenant	2,400
Present rank July 1, 1920, or earlier	2,400
Less than 7 years	2,000
Assistant Surgeon (First Lieutenant)	
Over 10 years' service	2,400
Over 3 and less than 10 years	2,000
First appointment above 2d lieutenant	2,000
Less than 3 years	1,500

In addition to this base pay there are also rental and ration allowances. These vary according to whether the officer has dependents. The sum for rental ranges from $480 a year for an assistant surgeon to $1,440 a year for an assistant surgeon general. The sum allowed for rations is $237.25 a year for one ration. The allowance for subsistence is based upon the cost of food in the calendar year 1922 from statistical estimates furnished to the President by the Secretary of Labor. There is also an increase for length of service in the grade. The annual base pay of the Surgeon General of the Public Health Service is expressly set at $6,500.

Nurse Corps. The bill allows the following amounts for pay of nurses: During the first three years of service, $840; from the beginning of the fourth year of service until the completion of the sixth year of service, $1,080; from the beginning of the seventh year of service until the completion of the ninth year of service, $1,380; from the beginning of the tenth year of service, $1,560. Superintendents of the nurse corps shall receive a money allowance at the rate of $2,500 a year, assistant superintendents, directors, and asssitant directors at the rate of $1,500 a year, and chief nurses at the rate of $600 a year, in addition to their pay as nurses. Nurses are also given an allowance for subsistence, the same as officers.

This proposed legislation is reported to have met with approval by medical officers in the Army, Navy, and Public Health Service. The measure will soon be reported to the Senate and House for final disposition.

S 3150.—To Reorganize and to Promote the Efficiency of the U. S. Public Health Service. Introduced February 13, 1922 by Mr. Watson of Indiana. Referred to Committee on Finance.

This is a measure suuplemental to the Watson-Dyer Bill heretofore introduced in Congress (A. J. P. H., February, 1922). It is identical with the previous measure, except that it has eliminated the provision for recognizing the nurse corps of the Public Health Service. Nurses are classified in the Lehlbach Bill (A. J. P. H., February and March, 1922) in a professional capacity and it is regarded, therefore, as not essential that the nurse provision be retained in the Watson Bill. Particularly is this true since the Lehlbach reclassification bill is likely to become a law before the Watson Bill. The Lehlbach Bill has already been passed in the House and has been favorably reported to the Senate by the Committee on Civil Service.

H. R. 7156.—To Prohibit Interstate Shipment of Articles Contaminated with Anthrax. Favorable report by Committee on Interstate and Foreign Commerce to the House.

This bill, introduced in the House June 15, 1921, was the subject of a favorable report by this Committee with a recommendation to the House for passage on Feb. 16, 1922. It makes the importation or the transportation in interstate commerce of shaving or lather brushes containing horsehair an offense with fine and punishment by sentence in prison as a penalty.

H. R. 10559.—Appropriation Bills. a. Departments of Commerce and Labor, Increase for Children's Bureau. Introduced by Committee on Appropriations, Feb. 22, 1922.

Passed the House of Representatives Feb. 25, 1922. Passed the Senate with amendments, March 9, 1922.

The principal item in this bill of interest to sanitarians is the appropriation for the Children's Bureau. It is as follows:

1. For operation, including salaries and other expenses, $106,040.

2. To investigate matters pertaining to the welfare of children and child life, especially infant mortality, $80,000. Amended in the Senate to $120,000.

3. Publications and traveling expenses, $85,000.

4. Promotion of welfare and hygiene of maternity and infancy and carrying out the provisions of Maternity and Infancy Act, $1,240,000.

Total, Children's Bureau, $1,511,040. As amended, $1,551,040.

There is an appropriation of $75,000 for the Women's Bureau in the bill. Increased by Senate amendment to $100,000.

H. R. 10663.—b. Second Deficiency Appropriation Bill. Introduced by Representative Madden of the Committee on Appropriations, March 1, 1922. Passed the House of Representatives, March 3, 1922. Passed the Senate, March 11, 1922.

This appropriation measure is now in conference. It is the second deficiency bill for the present year and carried a total of over $100,000,000 with several provisions of interest to public health, as follows:

United States Veterans' Bureau

For vocational rehabilitation, $73,714,182.

For medical and hospital services, $20,278,930.

(There is a provision in this section permitting the U. S. Veterans' Bureau to allot portions of this appropriation to the Public Health Service, the Board of Managers of the National Home for Disabled Volunteer Soldiers and the War and Navy Departments to be used in the care of disabled world war veterans.)

Children's Bureau

To carry out the provisions of the Maternity and Infancy Act, $490,000.

H. R. 10730.—c. Department of Agriculture. Introduced by Mr. Anderson from the Committee on Appropriations, March 6.

This bill, which contains the annual appropriations of the Department of Agriculture for the coming year, has several items of public-health interest, which are listed below:

Bureau of Animal Industry

Eradication of tuberculosis, $2,578,800.

Meat inspection, $891,180.

Investigations of serums, antitoxins, etc., $82,000.

Bureau of Plant Industry

Investigation of drug and other plants, $39,820.

Cereal investigations, $162,505.00.

Forest Service

For sanitary facilities on public camp grounds, $10,000.

H. R. 10864.—d. Veterans' Bureau. Introduced by Mr. Langley, March 11, 1922. Reported from Committee on Public Buildings and Grounds, March 14, 1922.

Authorizes the director of the U. S. Veterans' Bureau to provide additional hospital and out-patient dispensary facilities for veterans. The bill authorizes the director to accept gifts or donations for this purpose, an appropriation of $17,000,000 to be made.

e. Incorporation of the American Society for the Control of Cancer.

The Senate Judiciary Committee voted on March 13 against all legislation proposing federal charters for private organizations which are not formed for the purpose of executing some power granted in the Constitution. This action is adverse to the bill for the incorporation of the American Society for the Control of Cancer (S. 802).

NEW LEGISLATION

S. 1010. Change in Federal Statutes Affecting Punishment of Prostitutes. Passed the Senate, February 17, 1922.

This measure provides that where a woman or girl has been convicted of prostitution or similar offenses under circumstances rendering punishment by the United States necessary, she may be confined in some home of refuge to be designated by the Attorney General. There is a provision that the proposed law shall not apply to any woman who has previously been convicted twice of managing a house of prostitution.

A similar bill passed the Senate at the last Congress but failed in the House.

H. R. 10499. Relief of Destitute Coal Miners

and their Families. Introduced by Representative Bankhead of Alabama, Feb. 18, 1922. Referred to the Committee on Appropriations, Feb. 21, 1922.

Appropriated $1,000,000 for the relief of suffering coal miners and their families in Kentucky, West Virginia, Alabama, Ohio, and Pennsylvania.

H. R. 10577. Creation of Federal Motion Picture Commission. Introduced by Representative Appleby, February 22, 1922. Referred to the Committee on Education.

This bill creates a new division of the Bureau of Education to be known as the Federal Motion Picture Commission. There would be three commissioners appointed by the President with full power to review motion picture films and issue licenses for them. The bill states that no picture which "would tend to impair the health, debase or corrupt the morals of children or adults or incite to crime, or produce depraved moral ideas or debase moral standards or cause moral laxity in adults or minors" may be shown.

S. J. Res. 43. Granting authority to Central Committee of the American Red Cross to continue use of temporary buildings in Washington, D. C. as headquarters.

S. 3123. Preservation of quality and condition of water in reservoirs by fencing and enclosing them so as to keep out live stock.

S. 3278. Provides building in District of Columbia for care of tubercular pupils.

S. 3283. To promote safety on railroads by prohibiting use of wooden cars.

LEGISLATION—STATE

(From bi-weekly reports of the United States Public Health service issued with the coöperation of the National Health Council, March, 1922. These abstracts are necessarily very brief. Persons interested in obtaining complete copies of bills are referred to the various secretaries of states.)

Kentucky

1. Barbers. S. 189; H. 282. Requires barbers to get a permit in the future from a state board of examiners. Qualifications of barbers and sanitary rules to be prescribed by the board.

2. Chiropractic. S. 149; H. 251. Provides for a State Board of Chiropractic Examiners composed of three practicing chiropractors, who shall issue licenses to practice chiropractic in the future. All licensed chiropractors now practicing would be exempt.

3. Foods and Drugs. S. 232; H. 380. Makes it unlawful to manufacture or sell adulterated or misbranded foods or drugs. Defines misbranding and adulteration specifically and at some length. Examinations to be made by State Agriculture Experiment Station, which is empowered to fix standards of quality.

4. Hospital. H. 397. Appropriates $25,000 to National Medical College of Louisville to improve and equip colored hospital there.

5. Industrial Hygiene. H. 398. Requires washrooms in industrial plants.

6. Medical Practice. S. 190; H. 307. Provides that any person holding a certificate to teach in the common schools may enter medical college without further examination. Graduates of medical colleges would be authorized to practice without further examination.

7. Milk Products. S. 177. Prohibits manufacture or sale of milk products blended with fats or oils other than milk fats.

8. Municipal Health:

(a) S. 161. Provides for boards of health in cities of first and second classes, to be comprised of five members, two physicians, and one or more women interested in public health. Allows cities of second class to join with county in having a single health officer.

(b) S. 68. Repeals act concerning dwelling-houses in cities of the first class, relating to their construction, maintenance, light and ventilation, sanitation, inspection, safety, etc.

9. Pharmacists. H. 48 (also before Senate). Requires annual registration fee. Board of Pharmacy to publish list of pharmacists annually.

10. Drinking Water on Railroads. H. 328. All interurban passenger lines required to supply pure water for drinking purposes.

11. State Board of Health. Joint S. Resol. 23. Creates a State Board of Health Investigation Commission of five members to make a thorough investigation of the board and to make recommendations.

12. Tuberculosis. H. 131. (See A. J. P. H., April, 1922) is before the Senate as S. 72.

13. Vital Statistics. S. 37. (See A. J. P. H., March, 1922) is before the House as H. 16.

Maryland

1. County Health Officers. S. 51. Authorizes the appointment of full-time county health officers and defines their duties, removes present limitation on salaries, and provides that they cannot be removed except for neglect of duty.

2. Disease Control:

(a) S. 32. Amends present law authorizing State Board of Health to adopt rules and regulations for the control of communicable diseases.

(b) H. 265. Authorizing physicians to quarantine temporarily persons infected with a communicable disease.

3. Food and Drugs:

(a) S. 110. Requiring bottlers of soft drinks to secure licenses from the State Board of Health, and regulating materials used in soft drinks.

(b) S. 146. Providing for the appointment of an assistant commissioner of foods and drugs in the State Department of Health.

(c) H. 356. Prohibiting the floating of oysters in fresh water for more than eight hours.

4. Maternity and Infant Hygiene. H. Res. 6 (H. 72). To accept the terms of the Sheppard-Towner Act, to designate the State Health Department as the agency for the administration of this Act, and to authorize the State Treasurer to receive and pay out any federal appropriation made to the state upon the terms of this Act.

5. Midwives. S. 50. Amends present law relating to the registration and licensure of midwives.

6. Nurses:

(a) H. 144. To require the registration of practical nurses.

(b) H. 258. Providing that credit be given student nurses for course in schools teaching public health.

7. Optometry:

(a) H. 339. Amending laws relating to practice of optometry.

(b) H. 361. Providing for issuance of license to practice optometry to any person licensed and practicing in another state.

8. Osteopaths. H. —. To increase the scope of practice of persons licensed as osteopaths.

9. Pharmacists. H. 219. To lower the present standard of requirements of persons applying for licenses to practice as pharmacists.

10. Pharmacy. S. 147. Directing the State Board of Health to enforce the pharmacy law.

11. Tuberculosis. S. 33. Amends present tuberculosis law, by simplifying the procedure of report, and permits active tuberculosis cases to be handled by health officers in the same manner as any other communicable disease.

12. Vivisection. H. 310. Prohibiting experimental work on dogs. Anti-vivisection bill.

Massachusetts

A. Progress

H. 745 and H. 746 relating to physical examination of persons employed in hotels and restaurants, and requiring local boards to inspect same, have been given leave to withdraw.

B. New Bills

1. Blindness and Deafness. S. 293. Authorizes state to pay Charitable Eye and Ear Infirmary for treatment given to indigents.

2. Chiropractic. 631. Creates board of chiropractic examiners, composed of three members of that cult, who shall examine and license chiropractors. Persons having practical chiropractic previous to this act would be granted a license without examination. Defines chiropractic.

3. Food and Drugs:

(a) S. 232. Requires marking of candy and confectionery which has been in cold storage.

(b) S. 258. Relative to licenses of retail druggist.

4. Hospitals. H. 1042. Requires a license for all hospitals, except charity hospitals. The Department of Public Health is given supervision over all hospitals and the licensing of them, except where the Departments of Public Welfare or Mental Diseases have jurisdiction.

5. Medical Practice. S. 292. "The governor shall appoint ten doctors in areas which have no doctor and pay them the sum of fifteen hundred dollars."

6. Mental Hygiene:

(a) H. 373. No insane hospital shall be exempt from taxation unless at least one-fourth of the property and one-fourth of income are devoted to care of free patients.

(b) H. 385. No insane hospital exempt from taxation unless one-fourth of all resident patients shall be paying less than $25 a week.

(c) H. 588. No state minor ward to be committed to any state institution for the

insane unless examined by three physicians, other than those employed by the state, county or city.

(d) H. 912; H. 913. Makes insanity ground for divorce after five years' confinement in an institution and if it is incurable.

7. Midwives. H. 423. Requires registration of midwives after examination.

8. Nurses:

(a) H. 766. Increases compensation of chairman of Board of Registration.

(b) H. 1057. Limits hours of work of nurses to eight. Prohibits sleeping in rooms of or near patients.

9. Tuberculosis:

(a) H. 613. Provides for purchase and maintenance of tuberculosis hospitals and sanitaria by the Commonwealth. To be taken over from the counties and placed under jurisdiction of Department of Public Health.

(b) H. 875. Similar to H. 613, but with much less detail.

10. Water Pollution. S. 233. Prohibits pollution of water with oils.

Mississippi

1. Hospital and Institution Inspection. H. 461. Provides that all public or private hospitals, reformatories, convents, schools, asylums, and other institutions shall be subject to inspection for sanitary and other conditions by state inspectors.

2. Venereal Diseases:

(a) H. 292. Appropriates $20,000 for the prevention of venereal diseases, provided the Federal Government appropriates an equal amount under the Chamberlain-Kahn Act.

(b) H. 341. Requires physical examination of men to show freedom from venereal disease before marriage. This examination to be made within fifteen days before granting the marriage license.

3. State Board of Health. H. 296. Appropriates $134,000 for the year 1922 for administration of the State Board of Health and the same sum for 1923.

New Jersey

1. Chiropody. A. 216. Requires at least three years of academic education prior to entering school of chiropody, except where certificate has already been issued by the Department of Education.

2. County Health:

(a) A. 191. Enables counties having no county hospitals to assist in maintaining hospitals in the county. Raises allowable appropriation for such purpose from $75,000 to $125,000.

(b) S. 123. State House Commission shall fix rates to be paid by the state to counties for maintenance of indigent patients.

(c) S. 64. Gives board of freeholders in county of first class control of the contagious-disease hospital in such county,

(d) S. 65. Provides for board of managers of county hospitals, outlining duties and authority.

(e) S. 70. Outlines duties of county physician.

3. Food and Drugs:

(a) S. 74. Requires license from State Director of Health to sell bottled water.

(b) A. 152. Amends cold storage laws by reducing time articles may be kept in cold storage from twelve to three months, except by permission of State Director of Health.

4. Laundered Articles. A. 139. Regulates business of supplying for hire, towels, coats, aprons, toilet devices, and other articles used for cleanliness and sanitation.

5. Maternity and Infancy. S. J. Res. 2. Provides for acceptance of the Federal Maternity and Infancy Act.

6. Medical Practice:

(a) A. 71. Amends act regulating chiropractic by defining and exempting naturopaths in practice prior to March 1, 1922, from the act. Adds a naturopath to Board of Medical Examiners.

(b) A. 401. Allows State Board of Medical Examiners to appoint an agent to serve and execute process issued by court of record under medical practice act.

7. Midwives. A. 402. Amends midwife practice act by adding the giving of information on the prevention of conception, and practice of medicine as reasons for refusal or revocation of license.

8. Municipal Health. S. 92. Permits municipalities to take over sewerage systems from private corporations.

9. Nurses. See 16b below.

10. Osteopathy. A. 331. Defines osteopathy, requires a license to practice it, establishes a board of examiners, and provides qualifications.

11. Pharmacy. A. 200. Provides method of prosecution for violations of pharmacy laws.

12. Rehabilitation. S. 207. Requires that director or office-holder of rehabilitation commission must be a practicing physician and surgeon.

13. Social Hygiene. A. 470. Defines prostitution and lewdness, provides that performances or assistance in such offenses shall be misdemeanors.

14. State Government. S. 103. Provides method of enforcing provisions of State Sanitary Code uniform with that for local ordinances.

15. Telephones. A. 469. Requires telephone companies to wash public telephone receivers once a month.

16. Tuberculosis.

(a) S. 66. Amends tuberculosis act by permitting counties of first class to operate and control the tuberculosis hospital and sanatorium through a committee of the board of freeholders. Later amended to provide for consulting staff, delegation of duties as board of managers by freeholders, defines duties of superintendent, and provides for methods of admission of patients.

(b) S. 102. Authorizes State Department of Health to employ tuberculosis nurses at $1,500 a year. Appropriates $30,000 for this act.

(c) S. 121. Provides for judicial finding as to legal settlement and financial ability of patient or persons charged with his support, who are admitted to county tuberculosis hospitals. Gives State House Commission right to fix rates for indigent patients.

(d) A. 298. Authorizes board of freeholders to take over a tuberculosis hospital in the county.

17. Undertakers. A. 97. Requires undertakers' assistants to be registered with Board.

18. Venereal Diseases.

(a) A. 144. Requires certificate of freedom from venereal disease before marriage license will be issued.

(b) A. 346. Amends act for control of venereal diseases by adapting it from war- to peace-time needs. New provisions prevent sale of drugs for venereal diseases by druggists except on a physician's prescription, and prohibition of advertisements concerning these diseases.

(c) A. 347. Amends act relating to reporting of venereal diseases. Reports to be made to local boards of health instead of State.

19. Vital Statistics:

(a) S. 49 and A. 233 concern the Marriage License Law.

(b) S. 76. Amends Vital Statistics Law by allowing undertaker to file death certificate and obtain burial permit where he resides.

20. Water Supplies:

(a) S. 75.. Makes penalty of $100 for violating act relating to purity of water.

(b) S. 141, A. 224, A. 225. Various bills making it unlawful to pollute potable waters in any way.

New York

(Note: "A" is Assembly; "S" is Senate Bills; "Pr" means Printed Number; "I" is Introductory number.)

A. Progress

Pr. A. 563 (A. I. 342) appropriating $1,336,427 for Department of Farms and Markets in enforcing law requiring tuberculous animals to be killed, has passed Assembly.

Pr. S. 688; Pr. A. 847 (S. I. 336; A. I. 503; see Bulletin No. 2); and Pr. A. 848 (A. I. 501); all relating to food and drugs, have been reported.

Pr. S. 345. (S. I. 344) concerning foods and drugs (See Bulletin No. 2) has passed Senate and Assembly.

Pr. S. 624. (S. I. 587) giving medical inspector power to visit private institutions for the insane has passed Senate.

Pr. A. 718. To accept the Federal Maternity and Infancy Act, is before the Senate as Pr. S. 777.

B. New Bills

1. Chiropractic:

(a) Pr. A. 1379. New York State Chiropractic Society, Inc., would nominate board of chiropractic examiners to examine and license chiropractors. Present practitioners would be exempt from examination.

(b) Pr. A. 1551. Would require chiropractors to be graduates of recognized medical institutions.

2. Children:

(a) Pr. S. 1110. Permits allowances of child welfare boards to be made to guardians.

(b) Pr. S. 1218; Pr. A. 1571. Amends law relating to adoption of children with regard to hospitals.

(c) Pr. S. 1234. Establishes juvenile courts in counties. Among other things defines "neglected child" as one whose parents do not provide necessary medical care. Judge given power to appoint physicians or psychologists as court examiners.

3. Dentistry. Pr. A. 1569. Makes practice of dentistry without a license a felony instead of a misdemeanor.

4. Food and Drugs:

(a) Pr. S. 1179, Pr. A. 1427. Prohibits sale of imitation milk and cream. Defines skimmed milk. Requires labeling of containers of condensed or evaporated skimmed milk. Prohibits blending with other than milk fats or oils.

(b) Pr. S. 1180. Makes slight changes in law relating to oleomargarine.

(c) Pr. S. 895. Requires milk from diseased cattle to be pasteurized before being fed to other animals.

(d) Pr. S. 1258, Pr. A. 1454. Official grades for foods and farm products to be prescribed.

(e) Pr. A. 1370. Would establish a division of narcotic drug control in the State Department of Health, setting forth its duties.

(f) Pr. A. 1383. Amends penal law by holding person dispensing drugs guilty of felony.

5. Health Insurance. Pr. S. 621. "To establish a system of compulsory insurance to furnish benefits for employees in case of old age, unemployment, death, sickness, and accident, not covered by workmen's compensation, and for their dependents in case of sickness, accident and death, and to furnish maternity benefits, and to provide for contribution by employers, employees and the state, and to create the health insurance commission." (Title.)

6. Industrial Hygiene. Pr. A. 750. Amends labor law by requiring at least two men to work together when under compressed air.

7. Maternity and Infancy:

(a) Pr. A. 718. To accept the Federal Maternity and Infancy Act.

(b) See also 5 above. (Maternity benefits.)

(c) Pr. S. 1196, Pr. A. 1205. The present division of child hygiene of the State Department of Health would be changed to a division of maternity, infancy, and child hygiene. Its duties are outlined.

8. Medical Practice.

(a) Pr. A. 1567. Practicing medicine without a license made a felony instead of a misdemeanor.

(b) Pr. S. 653; Pr. A. 869. Prohibits fee-splitting by physicians and surgeons.

(c) Pr. S. 571; Pr. A. 762. Outlines methods of prosecution for misdemeanors for violation of public-health law relating to practice of medicine.

(d) Pr. S. 570; Pr. A. 763. Amends law relating to medical practice. Increases requirement of seven months a year to eight in medical school; eliminates examination in hygiene and sanitation; raises requirement of osteopaths from three to four years in colleges of osteopathy; makes rules regarding reciprocity; and other changes.

9. Mental Hygiene:

(a) Pr. S. 702. Authorizing appointment of commission to select a site for a state school for mental defectives in western part of the state.

(b) Pr. A. 870. Amends insanity law, allowing either commissioner or medical inspector to make required visits to institutions for the insane.

(c) Pr. S. 764. Amends mental deficiency law, generally.

(d) Pr. S. (779) 1175. Amends mental deficiency law, especially regarding discharge, temporary confinement, diagnosis and commitment, petition, guardianship, and adds a new section on mentally defective, delinquent women.

10. Mosquito Extermination. Pr. S. 1248, Pr. A. 1530. Amends law, transferring certain functions from state commission of health to the Board of Supervisors.

11. Municipal Health:

(a) Pr. S. 538. Amends law. Health officers to be removed only upon written charges for misconduct, after a hearing.

(b) Pr. S. 808. To promote the health and efficiency of firemen in cities by restricting tours of duty to ten hours.

(c) Pr. S. 1185. Amends public-health law relating to compensation of local health officers by providing that state shall pay the per capita compensation on account of inmates in state institutions.

12. Nurses. Pr. S. 978, Pr. A. 1243. Amends law by advancing date prior to which examinations of nurses may be waived to September 1, 1922.

13. Optometry. Prs. 1105. Defines practice of optometry and outlines requirements.

14. Pharmacy:

(a) Pr. S. 733. Raises preliminary educational requirements of pharmacists.

(b) Pr. S. 971, Pr. A. 1238. Amends law by requiring pharmacies to be owned by licensed pharmacists and drug stores by licensed druggists only.

15. Social Hygiene:

(a) Pr. S. 1111, Pr. A. 1020. Amends code of criminal procedure in relation to the commitment, custody and control of wayward minors between the ages of 16 and 21 years.

(b) Pr. A. 1325. Makes drivers of vehicles who give information or assist in prostitution guilty of a misdemeanor.

(c) Pr. S. 680. Defines wayward minor as (among other things) one who associates with prostitutes, and provides for control of same.

16. Tuberculosis:

(a) Pr. S. 532; Pr. A. 743. Amends general municipal law in relation to public general hospitals for care of the sick by allowing counties to establish such hospitals. If the county has no tuberculosis hospital, the general hospital shall include a tuberculosis pavilion.

(b) Pr. S. 534; Pr. A. 764. Allows departments of occupational therapy to be established in connection with public general hospitals or tuberculosis hospitals.

17. Workmen's Compensation:

(a) Pr. S. 573. Allows compensation to hospital orderly, etc., injured by a patient.

(b) Pr. S. 684, Pr. A. 903. Amends workmen's compensation law, generally.

18. Veterans, Care of. Pr. S. 1158. Provides that war veteran shall be entitled to medical and surgical treatment in a private hospital at the expense of the city or county in which he resides if he is indigent.

19. Veterinary Medicine. Pr. S. 734. Raises number of years required in a veterinary college from three to four years.

Rhode Island

1. Maternity and Infancy. H. 585. To accept the Federal Maternity and Infancy Act. Outlines methods by state.

2. State Board of Health. S. 44. Amends law. Outlines duties of State Board of Health.

3. Hospitals and Dispensaries. H. 686. Requires hospitals and dispensaries to get annual license from State Board of Health, which is authorized to make rules and regulations governing them.

4. Venereal Diseases. H. 700. Amends law by adding clause prohibiting druggists from dispensing drugs for treatment of venereal diseases except on a prescription from a physician.

South Carolina

1. Ophthalmia Neonatorum. H. 1262. (Reported from Committee.) Defines it, requires use of prophylactic by physicians and midwives. Requires registration of midwives, and physicians practicing midwifery. Administration of act by State Board of Health.

2. School Hygiene. H. 1313. (Unfavorable report.) Provides for annual medical, mental and dental inspection of all pupils attending public schools.

3. Tuberculosis. A concurrent resolution has been introduced in the Senate requesting legislature to provide accommodations for 50 additional patients at the tuberculosis sanatorium.

Virginia

A. Progress

1. Maternity and Infancy. The bill to accept the provisions of the Federal Maternity and Infancy act has passed both Senate and House.

B. New Bills

1. Attendants for the Sick. H. 3. Authorizes State Board of examiners of graduate nurses to train attendants for the sick and license same.

2. Maternity and Infancy:

(a) S. 85. To accept the Federal Maternity and Infancy Act.

(b) ——— This bill provides for licensing, regulation and inspection of maternity hospitals by the State Board of Public Welfare.

3. Public Health Nurses. Appropriates $10,000 per year for the next two years for training public-health nurses and social and health workers under the direction of a state commission, the course to be given at the Richmond School for Social Work and Public Health. One properly qualified resident of each congressional district of the state to be given free tuition to this school provided she

agrees to accept employment in public-health nursing, social work, or other health work in the state for at least one year after graduation.

4. Nurses. H. 4. Amends law by allowing state board of examiners of graduate nurses to apoint an inspector of training schools for nurses.

5. Tuberculosis:

(a) H. 354. Adds a clinic of doctors and nurses to bureau of tuberculosis education of State Board of Health, appropriating $15,000 for 1922 and the same for 1923.

(b) This bill levies a tax of one cent on each $100 of assessed value of land to be applied to the prevention and eradication of tuberculosis.

6. Venereal Disease. S. 335. Requires examination for venereal disease of all persons admitted to state institutions (jails, hospitals, etc.).

7. Vital Statistics:

(a) H. 5. Requires that principal executive officer of local boards of health shall be local registrars of vital statistics in cities. In towns and magisterial districts, the state registrar shall appoint a suitable person to be the local registrar.

(b) H. 230. Sets fees of local registrar at *fifty* cents for each birth and death certificate registered by him.

STATE HEALTH NOTES—GENERAL

California

Riverside will soon be known as the "Flyless City" if its municipal flycatcher continues with his scientific fighting of this pest. Last year he kept 150 traps, well baited with old bananas, melons, milk, and occasionally old meat, at important centers, collecting in his daily tour of inspection millions of flies.

The traps are in three sizes. The middle-sized one is simply a wire cage three feet long by one foot square, raised from the ground about one inch. The bottom is made of wire in the form of a V, with holes in the top of the V through which the flies easily crawl into the trap. All food is placed on the ground or on a board outside of, but directly under, the trap; thus the traps are always clean. After eating, the flies naturally fly upward into the trap. All traps are systematically visited during the feeding hours, which are early morning and evening, and sprayed with an ordinary tree sprayer with a mixture of cresote and coal oil.

Requests for traps often come to the Health Department from garage owners, restaurant keepers or fruit-stand proprietors, who willingly take care of them, thus extending the scope of the work. Though the fight for a flyless city started only last summer, there is a most noticeable diminution of flies in the streets, places of business and private homes.—W. B. Wells, M. D. *The American City.* Vol. xxvi, No. 3, March, 1922.

✣

The fortieth course of popular medical lectures given under the auspices of the Stanford Medical School on alternate Friday evenings was on the following subjects:

The Basis of Modern Medicine, The Attitude of the Public toward the Blind, The Treatment of Deformities Following Infantile Paralysis, The Control of Botulism, The Truth about Vivisection, and Present Day Methods of X-Ray Diagnosis.

✣

The power plant of the water works of Palo Alto is run by Diesel engines, which are water cooled. The hot water being turned back into the mains raised the temperature of the domestic supply to such an extent as to be objectionable. Then the idea of running the water into a wading pool for children came to mind and from this has grown a municipal swimming pool, much patronized by the younger generation.

The pool is circular with a conical bottom, constructed of cement; the diameter is 100 feet and the depth 2 feet at the edge and 5 feet in the center, with a capacity of over 176,000 gallons. The water leaving the engines is sufficient to maintain a temperature of 80° F. in the pool. With 130,000 gallons of fresh water entering every 24 hours, the water in the pool is completely renewed each 32 or 33 hours.

To prevent the growth of algæ the water is treated with chlorine gas and copper sulphate, about 1.3 parts per million of each. The pool is also emptied and scrubbed once a week.

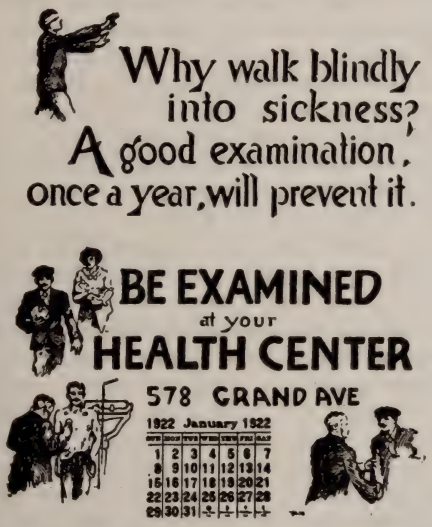
Connecticut

The New England Health Institute, the largest and most comprehensive health institute ever arranged for New England, will

be held in Hartford, Connecticut, May 1-6, 1922. The headquarters and lecture halls will be in Hotel Bond, 320 Asylum Street. This institute has been prepared under the direction of the State Boards of Health of New England, Yale and Harvard Medical Schools and the United States Public Health Service. This meeting will not be a convention but rather, as the name implies, a school of public health. Every effort will be made to present health problems in such a manner that the information given can be practically applied.

✣

A clever example of health publicity is the calendar poster (illustration) recently distributed by the New Haven Health Center, Philip S. Platt, director. The original is 15x22 inches, printed on heavy white stock



with a blue tint block, black print, and touches of red. These have been placed in all the factories of the district (Wards 10, 11 and 12) served by the Center, and are changed monthly.

Illinois

A district health superintendent and a quarantine officer from the State Department of Public Health have recently completed a smallpox survey of Williamson county. The investigation, which was carried out through the coöperation of local health officers and public school authorities, brought to light a rather surprisingly large number of cases of smallpox that had never been reported. In many instances the patients had received no medical care whatever, and little or no quarantine regulations had been observed. Situations of this kind demonstrate the urgent need of more extensive public-health education and of making some kind of provision whereby adequate medical service will be placed within reach of populations that are apparently suffering from a lack of such service.

✣

Provisional figures, recently released by the State Department of Public Health, give Illinois a death-rate of 11 flat per 1,000 for 1921. The rate is the lowest on record and represents a drop of a point and a half under that for 1920. Communicable disease incidence was also relatively light, 176,740 cases having been reported as compared with 347,974 for 1920.

✣

The number of births reported in Illinois jumped from 120,360 in 1920 to 131,289 in 1921, according to provisional figures recently released by the Department. The figures correspond to rates per 1,000 of population of 18.4 and 19.8 respectively. It is felt that the gain, which amounts to more than nine per cent, is more the result of a vigorous campaign in favor of birth registration than of an actual increase in the number of births that occurred.

✣

Arrangements have been completed by the Division of Communicable Diseases to administer the Schick test to all boys in the St. Charles State School for boys. Those who show a positive reaction will be immunized against diphtheria by the use of toxin-antitoxin. Similar action throughout the public and private schools of the state would be a long step in the direction of eliminating diphtheria in Illinois.

✣

During February of this year only 342 cases of smallpox were reported in the state as compared with 1,659 for the same month a year ago. The figures for whooping cough for the same periods respectively were 405 and 1,327. Influenza jumped from 424 to 6,974, while the pneumonia incidence was practically doubled, 2,529 cases being reported for February of this year against a total of 1,222 for the same month in 1921. Little variation is noted in reports of other communicable diseases.

Chicago Health Conference Successful. More than 1,000 people attended the Chicago Health Conference on venereal disease that was conducted under the auspices of the U. S. Public Health Service and the Illinois State Department of Public Health at the Congress Hotel in Chicago, March 13-18.

✣

Dr. Isaac D. Rawlings, State Director of Public Health, recently addressed two of Chicago's leading women's clubs on plans of the department of public health in reference to an infant welfare program, especially as it pertains to possible national funds that will probably be available under the provisions of the Sheppard-Towner maternity and child welfare act. Among other things the director pointed out that the most pressing needs along these lines at present relate to more complete registration of births, a general campaign in favor of milk pasteurization and the establishment of better baby conferences and infant welfare stations. For the greater part these things are needed down-state rather than in Chicago. As a result of the presentation of these facts the two clubs concerned passed resolutions completely endorsing the plans and instructed the respective secretaries to so inform the Children's Bureau at Washington.

Massachusetts

A new municipal administration having begun, a movement has been inaugurated to place at the disposal of the mayor of Boston and the health department such assistance as may be desired in formulating and executing plans designed to insure a model administration of health measures. This is not in the nature of dictation or intrusion but to assure to the mayor the sympathy of the medical profession in his purpose to give the city every protection.

A committee, composed of George C. Shattuck, Chairman, Horace D. Arnold, William H. Watters, Milton J. Rosenau, and Horace Morison, conferred with the mayor and met with delegates of medical and other organizations. Among other things it was resolved that the commissionership of health should at all times be held by a specially trained and qualified man, and that his tenure of office is dependent not on political considerations but on character of service.

The resolutions were endorsed by: Professor C. M. Hilliard, Dr. Richard M. Smith, Executive Committee of Boston Lying-in Hospital, Executive Committee of Boston University School of Medicine, Executive Committee of the Staff of the Peter Bent Brigham Hospital, Board of Managers of the Instructive District Nursing Association, Household Nursing Association, Massachusetts Society for Social Hygiene, General Executive Committee of the Staff of Massachusetts Homeopathic Hospital, Boston District of the Massachusetts Homeopathic Society, Dr. William R. P. Emerson, General Executive Committee of Ophthalmic and Aural Staffs of Massachusetts Charitable Eye and Ear Infirmary, Boston Council of Social Agencies, Boston Health League.

✣

A series of demonstrations of the Schick test is being made in various towns under a joint plan in which the Massachusetts Medical Society, the local board of health, and the State Department of Public Health are coöperating. A number of such demonstrations have already been carried out, while in other communities permanent Schick clinics have been established.

✣

A dental survey of school children in selected communities in Massachusetts is in progress. The purpose of this survey is not only to discover the prevalence of dental defects among school children, but the relative prevalence in rural and urban communities and in communities in which preventive dental work has been done as compared with those in which no facilities are available. Communities of certain characteristic types have been selected for the purpose of this survey.

✣

An advisory committee on health weeks and other health demonstrations has been formed by the division of hygiene of the State and Provincial Health Authorities. This committee is made up of representatives of twelve state-wide lay organizations through their health or child welfare committee. Its function is to help in coördinating the efforts of the local representative groups in a given community at such time as it may be carrying out a health program or other health demonstration.

Mississippi

The annual conference of the Southern Public Health Laboratory Association was

held at Jackson, Mississippi, March 17-18. The meeting was given over primarily to the discussion of laboratory technique; to the standardization of specimen containers and laboratory forms, and to the interpretation of reports. The following states were represented: North Carolina, South Carolina, Kentucky, Virginia, Georgia, Alabama, Mississippi and Arkansas; also the following cities were represented: Savannah, Chattanooga, Richmond, Birmingham and Montgomery. Dr. C. A. Shore, North Carolina, presided as chairman, and T. F. Sellers, Georgia, acted as secretary. The membership of this Association is confined to directors of state and municipal laboratories, but all who are interested in public-health laboratory work are invited to attend. The minutes of the 1921 meeting may be obtained from the secretary, T. F. Sellers, director, Georgia State Board of Health Laboratory, Atlanta, Georgia.

Missouri

The six recommendations regarded as vital to the future of public-health work in Missouri are based upon a series of partial and general surveys of the state and present all the advantages of right method in state health work. These recommendations include:

1. An amendment to the Public Health Act whereby counties of 25,000 population and over should employ an all-time health officer.
2. The passage of a law to prevent the marriage of mentally defective persons.
3. An act to require the recording of all marriages in the Central Bureau of Vital Statistics to complete the valuable statistical information.
4. A new sanitary engineering act whereby the State Board of Health may be able to insure a safe quality of drinking water to be dispensed to the public, the proper disposal of sewage and the facilitating of the abatement of insanitary conditions.
5. The Medical Practice Act should be amended to require an annual registration of all licentiates, making it possible at all times to know the location of a practicing physician and as a means of dispelling illegal and disreputable practitioners.
6. Adequate appropriations must be forthcoming for properly pursuing public-health work, for the development of local health organizations and for the promotion of health education.

The biennial report just issued, covering 1919-1920 sets in array all the facts brought out in the intensive health study conducted in the state during that period.—*The Nation's Health,* Vol. iv, No. 2. February, 1922.

New Hampshire

New Hampshire local boards of health are required to send their health officers or representatives to a school of instruction under the direction of the State Board of Health each year. The recent conference held at the State Capitol, Concord, N. H., March 23 and 24, was attended by two hundred and fifty health officers and nurses from all parts of the state. It consisted of a school of instruction for health officers and sanitary conference for health officers and public-health nurses. Subjects bearing on public-health matters were discussed and many papers were read, which cannot help but prove to be of great value to the public-health program. One of the aims of this conference was to promote the spirit of coöperation and coördinate the various health activities working for the good of the people throughout the state.

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The New Hampshire Tuberculosis Association held an all-day conference March 22 at the tuberculosis headquarters, Manchester, N. H. All of the county tuberculosis nurses were present and the tuberculosis program for the coming year was thoroughly discussed.

The executive secretary of the State Board of Health gave a splendid talk on the relationship of the nurse and the health officer, and made it clear to all present that the tuberculosis program being carried out by the association met with the approval of the State Board of Health.

New Mexico

The State Medical Society will hold its meeting in Gallup on April 28 and 29. The annual Health Officers' Conference will immediately precede the meeting of the State Medical Society, which will enable those interested in both organizations to attend the two conferences.

New York

Following the survey of hospital work in New York City made by the Public Health

Committee of the New York Academy of Medicine and the disclosed need of a central agency of information about hospitals, the United Hospital Fund has organized the Hospital Information Bureau with offices at 15 West 43d Street.

The aims of this bureau are to keep in touch with hospital work and progress in New York City; to furnish information to all interested with regard to administration, record-keeping and other facts concerning hospital work, organization and facilities; to study and make known the hospital needs of the city; to prepare exhibits; to maintain a library of hospital reports and statistics, also of record forms and blanks used in the several departments of the hospitals; to publish annually, or more often, information concerning hospitals; to promote uniformity in hospital reporting; and, whenever called upon by the hospitals, to assist in such administrative and efficiency studies as would be of value to the hospitals, municipal and private.

The chairman of the committee in charge of the bureau is Francis Smyth. Dr. E. H. Lewinski-Corwin, executive secretary of the Public Health Committee of the New York Academy of Medicine, has been appointed director of the Bureau.

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New evidence of the extraordinary infectiousness of influenza at the beginning of the attack and of the importance of the common cold in relation to outbreaks of respiratory diseases is found by the State Department of Health in the reports just received of a local epidemic in a sparsely settled section of Long Island. In this particular farming community, with scattered houses separated by large tracts of unoccupied land, and the connecting roads almost impassable with mud and snow, the people were largely cut off from nearby communities, and when influenza burst forth recently it was possible to determine and study the source of the infection and the time and manner of its spread with almost the precision of a laboratory experiment.

One Friday evening recently the church people of this region held a "sociable" at one of the farm houses. There were fifty-one people present, and by Monday morning forty of them were sick with influenza of a fairly severe type. The eleven-year-old son of the hostess had come home from school during the day and had gone to bed with a headache and fever. In the evening he could not resist the temptation to join the party, and got out of bed, dressed and mingled freely with all the guests. Then he went back to bed, thoroughly ill with a typical attack of influenza. Undoubtedly he infected nearly every one in the social gathering.

Of the eleven guests who escaped the infection several reported that they had had the disease in earlier years, although some of the eleven were young people and their escape is not easily accounted for.

All the cases in this outbreak were much alike. The incubation period was clearly fixed at twenty-four hours after exposure, there was sudden onset, with headache and backache, fever and great weakness lasting seven or eight days. There were apparently no pneumonia cases, and all the patients recovered. This local outbreak, according to Dr. Frank Overton, the Sanitary Supervisor who describes it, confirms observations at Camp Upton during the great epidemic of October, 1918. Each company of soldiers was like a separate community. Some companies had over half their men sick, while others which observed careful methods of isolation had only two or three per cent ill. Yet when a sick person finally gained access to a company and mingled with the men for a day or two, the result was an immediate outbreak of from ten to thirty cases.

So the State Health Department sees in this outbreak striking confirmation of the following views:

(1) Influenza at and just before its onset is extraordinarily infectious.

(2) Every case of a common "cold," even if mild, should be isolated.

(3) The public should realize the indefinite and possibly serious nature of a cold in the head. A "cold" may be almost any disease from a common and trivial cold to pneumonia; it may be caused by almost any germ from the as yet unknown virus of the common cold to some of the most virulent organisms known to medical science.

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A joint committee representing the Maternity Center Association, the New York Diet Kitchen Association and the Henry Street Settlement has offered a genuinely

democratic self-supporting and self-directing health service to the section in and about old Manhattanville, a section of New York City. These three associations are at present all located in one building in this section.

The plan provides for the organization of a Citizens' Health Protective Society whose members, at a cost of $6.00 per year, shall buy health service and visiting nurse care. This will include supervision for pregnant women, assistance at confinement, baby health service for children under two years with examinations, supervision of children from two to six years with visits of nurses and nutrition workers, and visiting nurse care for sick persons of all ages, always with the consent of the family physician.

Manhattanville has been chosen for the experiment because its population is relatively stationary, its citizenship largely self-supporting, and its birth-rate, sickness, and death-rate conform closely to general averages.

The project was first submitted to mothers in the district in families who had had the benefit of services during the past year, later presented at a citizens' meeting, where a committee was formed, which was later enlarged to represent the Church of the Annunciation, Harlem Board of Commerce, Hebrew Orphan Asylum, Knights of Columbus, League of Women Voters, Smith & Kaufmann, and various political clubs.

An anonymous gift of $10,000 made it possible to start the work, and the donor has offered to finance the work till January, 1923, but the object is to make it self-supporting, and educate the people to their own needs for this service.—*Better Times*, February, 1922, p. 10.

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Through the courtesy of the General Electric Company, five-minute health talks prepared by the State Department of Health will be broadcasted twice each week from Radio Station W. G. Y. (Schenectady). These health messages can be heard by any one possessing a suitable wireless telephone receiving set. The first talk was given Friday evening, March 24, at 7:40 P. M.

This talk marked the beginning in New York State of the use of the radio for broadcasting useful and beneficial health information directly to the public. How valuable is this means of getting important facts before the people can be judged from the report that several hundred thousand receiving sets have been sold in New York City during the last few weeks.

The American Society for the Control of Cancer in November, 1921, opened its Cancer Week Campaign in Denver by a wireless telephone lecture which was heard on the Pacific Coast. This was perhaps the first instance of the use of this unique method for purposes of public-health education. The United States Public Health Service began to broadcast health talks from the Naval Radio Station at Washington in December, 1921. It is believed, however, that the New York State Department of Health is the first official state health organization to prepare and use radio health talks in its work for the preservation of health and the prevention of disease.

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The cities of Auburn, Schenectady and Syracuse have been selected as strategic points for the beginning of a new and aggressive campaign against diphtheria which is now being conducted by the State Department of Health in coöperation with local health and school officials, the American Red Cross, and other civic agencies. Diphtheria was considered almost conquered after the discovery of antitoxin, but has recently shown a tendency to increase. The main feature of the renewed attack is the examination of large numbers of school children by means of the so-called Schick test, through which it is possible to determine whether or not a person is susceptible to diphtheria. Those who are not proved immune may be protected for life by the injection of a combination of toxin and antitoxin, a harmless procedure which has been perfected and extensively utilized in New York City during the past eight years.

Dr. Abraham Zingher of New York, who has tested over 100,000 children, is delivering addresses in a number of up-state cities arranged in coöperation with local medical societies and health departments, in order to acquaint the public with the use of this method for the control of diphtheria.

Porto Rico

The success of Children's Year in the United States inspired the Children's Bureau at Washington to initiate a similar campaign in Porto Rico. Weighing and measuring of

babies, teaching proper nutrition, prenatal and baby clinics, establishing Little Mothers' Leagues, and other child welfare activities were soon undertaken by the Bureau's representative on the island.

Those responsible for the forwarding of the campaign soon realized that eye troubles were such as to require special attention. At the request of the Children's Bureau, the National Committee for the Prevention of Blindness sent a committee to Porto Rico to study conditions and make recommendations looking to the prevention of blindness and the deterioration of sight. This committee had the hearty coöperation of the Porto Rico Association for the Blind. The plan of action was, in general, the same in each locality. Accompanied by representatives of the Children's Bureau and of the Porto Rico Association the committee was received by the leading citizens and held conferences with them regarding their problems of sight-saving. Physicians and others interested in public-health work met the committee to discuss causes of blindness and their prevention. Public meetings were held, addresses were given in both English and Spanish, and films presenting the various activities of the work were shown. At one town, 300 teachers attending the annual institute heard the message of the prevention of blindness. At another town the students of the University of Porto Rico proved an interested audience.

When one considers that the blind on the island are much more numerous in proportion than in continental United States, and that with the exception of a small school of 23 blind children there is no provision for the education of the blind, some realization of the situation as it exists in Porto Rico today may be arrived at.—*The News Letter,* National Committee for the Prevention of Blindness, No. 35. February, 1922.

Vermont

Backward children are not always, perhaps not often, backward because of either mental deficiency or slothfulness. Many of them are backward solely because of such ordinary and easily remediable defects as adenoids, near-sightedness, or bad teeth.

A case in point was recently reported by the official representative of the Public Health Service in the eighth sanitary district of Vermont, in which the Service is coöperating in a rural health work project.

Medical inspection of one of the graded schools in October, 1919, showed that it had been thought necessary to instruct in a special room sixteen pupils who had seemed to be unable to keep up with their respective classes. Physical examination showed that each of the sixteen had some serious hampering physical defect (chiefly enlarged tonsils, adenoids, or defective hearing or eye-sight) which, rather than any mental handicap, was the probable cause of their inability.

Through the coöperation of the school directors, the facts were brought to the attention of the parents or guardians of the children and all were set right before the end of the year.

On reëxamination of the pupils the next December (1920) it appeared that all of the sixteen previously backward children had caught up with their proper grades and were keeping up in them with their classmates. A year later, in December, 1921, some of these sixteen children were among the mental and physical leaders in their grades.

Wisconsin

Wisconsin's tuberculosis death-rate for 1921 was 73.8 per 100,000 population, the lowest ever attained in the state. For 1920 the rate was 84.6. The total tuberculosis deaths were 1,965, as compared with 2,217 for 1920.

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The Bureau of Child Welfare of the Wisconsin State Board of Health plans to place a Child Welfare "Special" (motor truck) in the field in April for service in distinctly rural counties. The car will be in charge of a pediatrist, a trained nurse and a chauffeur

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst and E. B. Starr.

Occupational Diseases of the Skin (California).—The various itches found on workers' hands are usually eczematous lesions, mainly the result of external irritation. Moisture, cold and heat aggravate the condition, and often infection by scratching is added. In California, poison ivy *(rhus diversilloba)* and poison oak are very common. Farmers, road builders, and railroad section men often contract the trouble. At the University of California for the past six years 6 per cent of the entire student body is constantly afflicted. Packers of tile and electric lamps are subject to an itching of the hands and legs due to the straw used in packing which is found to be infested with an arachnida known as the pediculoides ventricosus. This is a blood-sucking parasite which when puncturing the skin of the hands, is easily rubbed off, and for this reason more lesions are found on the arms and legs. Persons sleeping on infested straw mattresses may acquire the malady which may resemble chicken pox in its more marked forms. Formaldehyde fumigation of such straw is a satisfactory procedure in prevention. Dried fig packers suffer from a similar dermatitis on the fingers and hands. This was first believed to be due to the tiny spicules on the fruit or on the rough leaves. However, Strasburger mentions that the latex cells secrete a milky fluid containing a poisonous alkaloid, calcium malate and proteid granules. Workers in budding fig trees experience the same affliction and it is occasionally present among the fresh fruit pickers. The trouble is undoubtedly due to the destructive action of the enzyme in the latex of the *ficus carica.* The preventive measures offered are the use of cotton gloves, or annointing the hands with a high grade mineral oil.—Robert T. Legge, *California State Journal of Medicine,* December, 1921.

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The Efficiency of Various Ventilating Systems.—This is a 16-page article including graphs and tables and is based on the somewhat exhaustive study of the atmospheric conditions maintained in a small-arms plant in the state of Connecticut. A general survey of atmospheric conditions was made through a detailed study of atmospheric conditions in a window-ventilated workroom, then in an annealing shop where an intensive heat hazard was controlled by fan ventilation, then in shell washing shops where heat and humidity were controlled by fan ventilation, followed by discussion of the heat hazard involved in certain processes in the summer time. The authors conclude as follows:

A. The commonest evil in the field of air-conditioning is the slight but highly objectionable overheating which obtains in the ordinary window-ventilated factory workrooms where there is no marked overcrowding and no special process tending to overheat or vitiate the air. This evil can generally be controlled by routine observation of thermometers, the application of common sense to the regulation of artificial heat sources, and the use of windows before and during the shift.

B. Heat hazards of a high degree of intensity can be adequately controlled during cool weather by properly designed and operated systems of fan ventilation.

C. In summer time, while the hazard incident to processes involving the production of excessive heat can and should be mitigated to some extent by a system of ventilation which produces vigorous air movement, it cannot be fully controlled except by special systems of air cooling which would involve a prohibitive expense and must, in general, be accepted as an inevitable incident of certain industrial employments. Where this is the case, the effects of the high temperature should be minimized by short spells of work alternating with rest periods. —C.-E. A. Winslow, and Leonard Greenburg, *U. S. Public Health Reports,* Vol. 37, No. 6, Feb. 10, 1922, pp. 275-291.

Prevention of Illness Among Miners.—The author first takes up carbon monoxide poisoning, briefly reviewing the recent work of Forbes and Yandell Henderson, and the methods of collecting blood samples for carbon monoxide tests and the comparison of test methods on the blood. He indicates that the tannic acid method which is soon to be published is probably the best. In the treatment of carbon monoxide asphyxia, Henderson and Haggard advise the use of pure air containing from 6 to 10 per cent of carbon dioxide. Sayers, O'Brien, and Yant (*J. A. M. A.* Vol. 77, No. 14, Oct. 1, 1921, p. 1086) were unable to obtain such striking differences between oxygen treatment and the carbon dioxide oxygen treatment. When tried on man with 30 to 40 per cent of the blood saturated with carbon monoxide, there was but little difference in the rate of elimination of the carbon monoxide from the blood, and these investigators concluded that the method was suitable for first aid, although further study of its use is advisable.

The detection of carbon monoxide in the air is touched upon and the palladium chloride of the French investigators may be used or the method developed in this country, which seems preferable. Here the detection of carbon monoxide by C. R. Hoover (*Jour. of Industrial and Engineering Chemistry,* Vol. 13, No. 9, September, 1921) is recommended. The detector chemicals are fuming sulphuric acid and iodine pentoxide on granular pumice in a sealed glass tube. For protection against the gas, the gas mask already provided (to be published as *Bureau of Mines Technical Paper 300*) is sufficient against carbon monoxide (within limits) provided that the air contains plenty of oxygen.

In regard to carbon dioxide, we can conclude that, while it is possible to breathe 9 to 10 per cent of carbon dioxide in oxygen, any percentage above 5 will cause noticeable effects, and between 2 and 2½ per cent is all that should be permitted in the inspired air of an oxygen breathing apparatus at any time.

For dust and ventilation, reference is made to the South African investigators and to the work of Lanza, Higgins, and Harrington in this country. The former investigators, Orenstein and Ireland (South African Institution of Engineers, April, 1921) conclude the following:

1. Dust is not alone the cause of phthisis.

2. Ventilation does not increase the harmful dust conditions.

3. Exhausting air through the pipes from drives and winzes is much better than forcing air in through similar pipes.

4. Measurement of air currents and notes of any changes in velocity and direction in every section is absolutely necessary.

5. Air in stopes should be induced to flow along the face and not back in the open waste.

6. While eddies caused by local circulation may be helpful, such circulation can only be helpful for a limited time and as a temporary measure. Furthermore, regular periodic physical examinations are advocated. All drills used in scheduled mines must have the approval of the government mining engineer. The Clifton dust collector (P. H. Warren, Australasian Institute of Mining and Metallurgy. *Proceedings. New Series,* No. 42, 1921) is briefly described. The essential feature is a dish with a rubber sponge fitted to the top which is forced against the rock face, the steel drill working through the dish which is supported on a rigid stand. Water is supplied to the dish by means of a half-inch hose. The advantages claimed are that the dish tends to confine the water and thus make the work cleaner and drier. Since firing holes is an important source of dust production, a promiscuous firing should never be permitted. In this country, Harrington emphasizes the elimination of dry drilling, and the circulation of pure air at the working face.

For temperature and humidity the findings of Harrington and Lanza (Miners' Consumption in the Mines of Butte, Montana, *Bureau of Mines Technical Paper 260, 1921*), and of Sayers and Harrington (*Public Health Reports,* Vol. 6, No. 4, Jan. 28, 1921) are referred to, as well as the exhaustive study on the science of ventilation by Dr. Leonard Hill (*British Medical Research Committee Reports,* Nos. 32 and 52). —R. R. Sayers, *Serial No. 2319,* U. S. Bureau of Mines, February, 1922.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

A Method of Obtaining a Homogeneous Culture of the Tubercle Bacillus.—The author, who was recently able to grow certain strains of B. tuberculosis on ordinary agar, now claims to have succeeded in obtaining a homogeneous culture of this organism by seeding it into the depths of a medium of potato broth. If a small piece of the surface film of a growth on this medium is transplanted to a fresh flask and immersed below the surface it is found that in forty-eight hours there is an abundant growth, producing a uniform turbidity and consisting microscopically of numerous separate immobile bacilli. In shape they resemble the bacteria on the nodes of the Leguminosae; some are branched, some show a moniliform appearance, some are ovoid, and some recall the aspect of capsulated diplococci. They are readily stainable by Gram's method. On the other hand, they have lost the capacity of retaining the stain in Ziehl-Neelsen's method. Yet they are easily agglutinable by an antituberculous serum. Moreover, when seeded on to glycerin potato they furnish a growth in ten days of typical tubercle bacilli. Injected into the guinea pig they fail to give rise to any reaction, either local or general. He has assured himself that no question of contamination entered into these changes.—Vaudremer, C. R. *Soc. Biologie,* December 10, 1921; *Brit. Med. Jour.,* Jan. 7, 1922.

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The Virulence of Diphtheria-like Organisms.—Of 161 strains cultivated from cases of diphtheria, convalescents and carriers, 79 were virulent B. diphtheriæ, 62 were avirulent B. diphtheriæ (including 8 B. xerosis), and 20 were Hoffmann's bacillus (all avirulent). Cultures of B. diphtheriæ from cases of diphtheria were virulent in 100 per cent of those examined; from convalescents in 90.9 per cent; from carriers in only 38.8 per cent. Sugar reactions were carried out with 149 cultures; glucose and saccharose were the only reagents used as a routine. The value of "sugar" tests may be summed up as follows: If glucose is not fermented, the culture is not virulent B. diphtheriæ. If glucose is fermented but no saccharose, the organism may be virulent or may not. If both glucose and saccharose are fermented, the organism may be B. xerosis, may be contaminated, or (Graham Smith) may be virulent. The authors have found no evidence that virulent cultures, if isolated in a pure condition, become avirulent. For absolute diagnosis, a culture morphologically resembling B. diphtheriæ and capable of producing acid in glucose must be submitted to a virulence test. The intracutaneous method is simple, economical, and apparently reliable. A. J. Eagleton and E. M. Baxter, *Brit. Med. Jour.,* Jan. 28, 1922.

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Composition of the Urine.—An elaborate investigation into the composition of the urine passed by a healthy individual under various conditions of rest and activity has been made by the authors. Investigations were carried on over a period of six months, during which the subject continued on a normal diet. Under all conditions it was found that the total nitrogen of the urine was decreased at night, whereas ammonia excretion was increased at night. Urea, uric acid, creatinin, and amino-acids were excreted in greater quantities during the day. These observers substantiated the fact that the acidity of the urine is distinctly higher during the night, and attribute the increased nocturnal excretion of phosphates to the same cause. This has an interesting bearing on one of the well-known theories of sleep, which postulates that sleep is due to an accumulation of acid products in cells, these acids being excreted more slowly than they are formed during the day and thus collecting in the cells, with a resulting diminution of the activity of the cells, particularly of the brain cortex. The authors suggest that the cells of the body may not excrete certain fixed acids into the blood until certain amounts are formed in each cell. When this is the case these acids are excreted into

the blood, and fatigue or sleep is produced. With reference to the effect of food it was found that the urine was more acid just after a meal, possibly due to removal of alkaline phosphates in saliva, and less acid about two or three hours after a meal, probably due to removal of hydrochloric acid in gastric secretion. The so-called alkaline tide is thus dependent on digestion. Campbell and Webster, *Biochem Jour.* vol. xv, No. 5, (1921); *Brit. Med. Jour.,* Jan. 21, 1922.

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The Serological Differentiation of Some Strains of B. diphtheriæ.—The author has tested the agglutination reactions of 130 strains of B. diphtheriæ, the majority of which had been isolated from patients and carriers during the recent outbreak in the London district. Altogether thirteen serums were prepared, and by their use it was found possible to classify 80 per cent of the strains into three groups. Of these, Type I contained 13 per cent; Type II, 6 per cent; and Type III, 61 per cent. The results in some cases were confirmed by the absorption reaction. No correlation could be determined between the serological type and the virulence of the organisms. Moreover, so far as could be judged from protection experiments, the toxin secreted by organisms belonging to different types was the same. That is to say, that whereas the bacterial antigen is specific, the toxin antigen is non-specific. It is of interest to recall in this connection that Tulloch reported similar findings in his work on tetanus bacilli, the organims being classifiable into four types, yet the toxin formed by them being common to all. Bell, *Journ. R. A. M. C.,* January, 1922; *Brit. Med. Jour.,* Feb. 11, 1922.

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The Cultivation and Biological Characteristics of Spirochæta Obermeieri.—A study of the growth requirements of Spirochæta obermeieri resulted in the perfection of a method which enabled the authors to cultivate the organisms consistently from the blood of infected mice and rats, to maintain the viability of cultures for periods of at least 3 to 7 weeks, and to carry them on in successive subcultures by transplanting at intervals of 2 to 4 weeks. This method is essentially the same as the Noguchi technique for the cultivation of the Leptospira group, but emphasizes control of the physicochemical factors that act to limit and prevent growth, and prescribes the conditions necessary to counteract the injurious influences. The main facts may be briefly summarized as follows: (a) Ascitic fluid, horse or rabbit serum may be used as culture fluids. (b) These fluids become progressively more alkaline on exposure to air. (c) Uniformly successful results depend chiefly on the proper adjustment and stabilization of the reaction. (d) A balanced reaction can be secured by adding 1 per cent peptone broth or egg albumin as buffer, and covering the culture with a layer of oil. (e) The reaction limits for growth and survival are between pH 6.8 and 8.2, with the optimum at pH 7.2 to 7.4 (f) Spirochæta obermeieri is a strict ærobe, consequently in order to permit adequate æration, the oil layer should not exceed 1.5 cm. in height. I. J. Kligler and O. H. Robertson, *Jour. Exp. Med.,* Vol. 35, 303, (1922).

✠

Blood Culture in the Diagnosis of Typhoid Fever.—The author draws attention to the differences of opinion still existing as to the diagnostic value of blood cultures in typhoid fever, and she notes that the proportion of positive results depends largely on the blood being examined at once and the test being repeated when the first examination is negative. The value of the test is appreciably reduced when the blood has to travel a considerable distance after being drawn. At the Serafimerlasaret the author has examined the blood in 40 cases of typhoid, and in all the 12 cases examined in the first week of the disease she obtained typhoid bacilli on culture. Positive results were obtained in 16 of the 22 cases examined in the second week, in 4 of the 5 examined in the third week, and in 1 of the 2 examined in the fourth week. Thus she found typhoid, and in all the 12 cases examined in the first week of the disease she obtained typhoid bacilli on culture. Positive results were obtained in 16 of the 22 cases examined in the second week, in 4 of the 5 examined in the third week, and in 1 of the 2 examined in the fourth week. Thus she found typhoid bacilli in the blood of 33—that is, in 83 per cent. This proportion would have been still higher had all the negative test been repeated. Two of her cases were particularly instructive.

One was that of a patient whose temperature in the eighth week of the disease was 37.5° to 38.3° C. Typhoid bacilli were obtained from the blood at this stage. Five days later, and after the patient had been afebrile for four days, the blood was again examined but no typhoid bacilli could be found. The other case was that of a patient who had been afebrile for eighteen days, had been up and felt perfectly well, when in the ninth week the temperature again suddenly rose. Culture of the blood on the second day of the fever proved negative, but two days later a new culture yielded numerous typhoid bacilli.—Svartz, *Hygiea,* December 31, 1921; *Brit. Med. Jour.,* Feb. 18, 1922.

✣

Diagnosis of Tuberculosis by the Reaction of Fixation.—The author as the result of the examination of the reaction of fixation in 115 tuberculous cases and 38 non-tuberculous subjects, came to the conclusion that the reaction of fixation with Besredka's antigen is specific, though a positive result is occasionally found in syphilitic patients who are not tuberculous. In dormant tuberculosis the reaction was positive in 53 out of 56 cases, or in 94.3 per cent; in active forms of the disease, without marked signs of intoxication, the reaction was positive in 47 out of 50 cases, or in 94 per cent, and in rapdily destructive forms, and forms accompanied by signs of severe intoxication the reaction was positive in 3 out of 9 cases, or in 33.3 per cent.—Ichok, *Arch. Med. Belges,* October, 1921; *Brit. Med. Jour.,* Feb. 18, 1922.

✣

The Leukocyte Count After Operations and Traumas.—The author quotes conflicting authorities in regard to increase in the number of leukocytes after ether anesthesia, trauma and operations in general. He reports extensive research of his own which has demonstrated that in all these conditions the leukocyte count runs up, possibly in ten minutes, and persists high for five days at longest. As the number of polynuclears increases, the proportion of lymphocytes decreases.—A. Romani, *Riforma Medica,* Naples, 38, 9, (1922); *Jour. A. M. A.,* 78, 929, (1922).

✣

Medium for Cultivation of Gonococcus.—Plasma medium is used by the author for the cultivation of the gonococcus. It is prepared as follows: nutrient agar of reaction plus 6 (Eyre) and solidity 4. To the medium one per cent plasma made with powdered sodium citrate is added, then the mixture is poured into tubes or plates and tested for sterility by incubation. The agar should be at a temperature of 55° C. when the plasma is added. The incubator temperature should be 35 or 36° C. A dish of water should be kept alongside the cultures in the incubator. The medium so prepared is used by the author at the rate of nearly 100 tubes a week, and has never failed to fulfill all requirements.—C. E. Jenkins, *Jour. of Path. Bact.* (London), 25, 105, (1922); *Jour. A. M. A.,* 78, 946, (1922).

✣

Precipitation Test for Syphilis.—The author uses an antigen which is an alcoholic extract of the human heart. The serum to be tested is inactivated for from ten to fifteen minutes at 55° C.; 10 drops of saline are added and then the antigen in the manner described. A positive serum is signified by a distinct precipitation. C. Y. Wang, *Lancet.* (London), Feb. 11, 1922.

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Serologic Test for Syphilis.—The author found that the Wassermann and the Sachs-Georgi tests gave concordant findings in 4,300 specimens of serum. The latter is the more sensitive but it is not specific for syphilis and is useful only to control and supplement the Wassermann. He found it positive in 100 per cent of twenty-eight cases of acute articular rheumatism.—J. Wolf, *Schweiz. med. Wochenschrift,* 52, 118 (1922); *Jour. A. M. A.* 78, 850, (1922).

✣

A Superior Antigen for Complement-Fixation Tests in Syphilis.—A new antigen is described prepared of mixtures of dried powdered muscles of several beef or human hearts; the hemolytic and anticomplementary activities are largely removed by primary ether and alcohol extractions, the antigenic principles of these being recovered by precipitation with acetone and returned to a secondary alcoholic extract with 0.2 per cent cholesterol. The resulting cholesterolized and lecithinized alcoholic extract of heart is polytropic, keeps well, is very highly antigenic and but slightly hemo-

lytic and anticomplementary; different extracts are uniform in these properties.—John A. Kolmer, *Am. Jour. Syphilis*, 6, 74, (1922).

✣

Complement Fixation Reaction in Tuberculosis.—A series of 50 cases of subacute, chronic, or suspected tuberculosis have been submitted to the complement fixation test. Besredka's antigen was employed. Though the number of cases is too small to derive any appreciable indication as to the value of the test itself, one interesting point is brought out. Six patients convalescing from encephalitis lethargica, showing the sequelæ of tremors, pareses, and disorders of locomotion, all united in giving a positive reaction. In each case the Wassermann reaction was negative. Fortunately an exception of this nature is not calculated to interfere seriously with the diagnostic value of the test.—Rouslacroix, *C. R. Soc. Biologie*, January 7, 1922; *Brit. Med. Jour.*, March 4, 1922.

✣

Specific Precipitin Test for Human Semen.—Injection of rabbits with human semen induces the formation of precipitins that are specific for human seminal proteins, and this precipitin reaction may prove of value in determining the nature of spots suspected to be of seminal nature.—Ludvig Hektœn, *Jour. A. M. A.* 78, 704, (1922).

✣

Changes in the Reaction of Serum on Thermal Destruction of Complement.—The destruction by heat (56° C.) of complement in normal guinea pig and rabbit serum is accompanied by changes in the H-ion concentration. These probably are caused by dissociation of the complement substance or substances.—Edwin F. Hirsch and Ebba C. Peters, *Jour. of Inf. Dis.* 30, 363, (1922).

✣

Cultivation of the Gonococcus.—Testicular blood agar with a reaction of P_h 7.4-7.8 is the most favorable medium for the isolation and subsequent cultivation of the gonococcus. The medium is prepared thus: Beef testicle from which all connective tissue has been removed is put through a meat grinder, weighed and with twice its weight of distilled water added, is infused over night on ice. The following morning the mixture is heated in a double boiler to 50° C., allowed to stand for one hour and then brought to the boiling point. Let it stand for another hour to permit the solid particles to settle, after which the liquor is decanted off and used as the infusion for the preparation of culture mediums. For the preparation of testicular infusion agar, 2 per cent peptone, 0.5 per cent glucose, 0.2 to 0.3 per cent monobasic sodium phosphate and 2.5 per cent granular agar are added. This is heated over a flame and stirred constantly until the agar is dissolved. The medium is titrated with phenol red as an indicator and the reaction adjusted to P_h 7.4 to 7.8; if phenolphthalein is used as an indicator, it should be adjusted to a 0.6 reaction. The medium is tubed and autoclaved for 20 minutes at 15 lbs. The titration is checked after sterilization. While the tubes are still liquid (just before the agar solidifies) human blood in the proportion of 0.5 to 2.5 per cent is added. If human blood is not available, defibrinated rabbit's blood (1-5 per cent) may be substituted. The absence of sodium chloride, the proper reaction and moisture content are especially important. Blood or blood serum mixed with the testicular agar or smeared on the surface of slanted tubes is necessary for the ready isolation of the gonococcus, but is not essential for the securing of growths of stock cultures. Fermentation tests made with solid mediums containing 0.5 per cent glucose and phenol red as an indicator result in a significant primary acidity and secondary alkalinity. Reduced oxygen tension is of no practical value for either the isolation or subsequent cultivation of the gonococcus. Aniline dyes of the violet and green colors tend to inhibit the growth of staphylococci more than that of gonococci from cases of mixed infection. Methyl violet added to blood-testicular agar in a proportion of 1,200,000 to 500,000 appears to be of greatest value.—Mary J. Erickson and Henry Albert, *Jour. of Inf. Dis.*, 30, 268, (1922).

✣

Lactometer and Fat in Milk Control.—By locating on the diagram (suggested in this paper) the corrected lactometer reading and the per cent of butter fat of any herd milk, it is possible to determine at a glance whether it is worth while or not to investi-

gate the sample further for skimming, deficient solids, or watering.

The paper contains tables for ready calibration of lactometers by sugar solutions and by dilute sulphuric acid solutions. An approximation formula has been worked out for calculating the normality of the sulphuric acid solution of any desired density, so that the lactometers may be calibrated at any particular point desired.

The equation for that part of the graph defining skimming may be expressed by this new and very simple rule: "Add 3 to the lactometer reading and then divide by 10. The result will be the minimum per cent of fat in a mixed milk above suspicion of being skimmed."

The paper rests upon (1) the mathematical treatment of Richmond's Milk Formula and Fleischmann's as simultaneous equations; (2) the substitution of the legal minimum for per cent total solids into Richmond's Formula; (3) the development of Bialon's Formula for the limiting case of an unwatered milk. Through the results obtained by these operations, the diagram referred to above was developed. Its use in routine work would obviate the necessity of calculations by formula and by slide rules.—D. W. Horn, Bryn Mawr, Pa. *Amer. Journ. Pharm.*, Dec., 1921. Vol. 93, p. 817.

CONVENTIONS, CONFERENCES AND MEETINGS

This calendar is published through the coöperation of the National Health Council, 370 Seventh Ave., New York City. The Council will be glad to answer promptly any written or telegraphic inquiries regarding meeting dates in order to avoid conflicts.

Apr. 26-28, American Urological Association, Atlantic City, N. J.

Apr. 29, National Research Council, Division Medical Sciences, Washington, D. C.

May 1-2, American Therapeutic Society, Arlington Hotel, Washington, D. C.

May 1-3, American Pediatric Society, Washington, D. C.

May 1-3, American Gynecological Society, Washington Hotel, Washington, D. C.

May 1-6, New England Health Institute, Hotel Bond, Hartford, Conn.

May 2-4, American Orthopedic Association, Hotel Washington, Washington, D. C.

May 2-3, American Neurological Association, Washington, D. C.

May 2-4, American Dermatological Association, Washington, D. C.

May 2-3, Association of American Physicians, Hotel Raleigh, Washington, D. C.

May 3, New York State Association of Public Health Laboratories, Albany, N. Y.

May 3-6, American Physical Education Association, Detroit, Mich.

May 4-6, National Tuberculosis Association, Washington, D. C.

May 8-11, American Society of Mechanical Engineers, spring meeting, Atlanta, Georgia.

May 15-19, American Water Works Association, Bellevue-Stratford, Philadelphia, Pa.

May 16-18, Illinois Medical Society, Mt. Vernon, Ill.

May 17-18, Conference of State and Territorial Health Authorities with the United States Health Service in Washington, D. C.

May 22-26, American Medical Association, St. Louis, Mo.

May 29-30, Ontario Health Officers' Association, Toronto, Canada.

June 6-9, Canadian Association for Prevention of Tuberculosis and Canadian Public Health Association, The Royal Hotel, St. John, New Brunswick.

June 21, National Conference of Jewish Social Service, Providence, R. I.

June 22-29, National Conference of Social Work, New Biltmore, Providence, R. I.

June 22-24, American Association for the Advancement of Science, summer meeting, Salt Lake City, Utah.

June 24, Eugenics Research Association, Eugenics Record office, Cold Spring Harbor, L. I.

Biennial Congress on Nursing:

June 26-30, American Nurses' Association, Seattle, Wash.

June 26-30, National League for Nursing Education, Seattle, Wash.

June 26-31, National Organization for Public Health Nursing, Seattle, Wash.

June 27-29, Annual Conference, State Sanitary Officers and Public Health Nurses, Saratotga, N. Y.

July 4-10, National Education Association, Hotel Plaza, Boston, Mass.

October 16-19, Fifty-First Annual Meeting, A. P. H. A., Hotel Statler, Cleveland, Ohio.

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of the
Johns Hopkins University

The fifth session begins October 3, 1922. Opportunities for instruction and investigation will be offered in Public Health Administration, Epidemiology, Bacteriology, Immunology, Medical Zoology, Vital Statistics, Sanitary Engineering, Physiology as applied to Hygiene, Chemistry as applied to Hygiene, Sanitary Law, Mental Hygiene, etc. Opportunities for practical work are offered by means of field demonstrations, an organized county health unit and the state and city health departments. Courses are organized on a trimestral basis. Students may enter the School as candidates for a degree or as special students at the beginning of any trimester. Men and women are admitted on the same terms.

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Vol. XII JUNE, 1922 No. 6

SCHOOL HEALTH SUPERVISION BASED UPON AGE AND SEX INCIDENCE OF PHYSICAL DEFECTS

S. Josephine Baker, M. D., D. P. H.

Director, Bureau of Child Hygiene, Department of Health, New York City

Read at a Joint Meeting of the Public Health Administration and Child Hygiene Sections of the American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 18, 1921.

A SURVEY of the systems of school medical inspection as carried on during the past fifteen years does not give us reason to feel that any definite advance, either in technique or method, has been apparent during that period, as far as the detection and correction of physical defects are concerned.

In this connection, it is interesting to trace briefly the history of school medical inspection in the United States. In 1894 Boston inaugurated the first system for the purpose of limiting the spread of infectious diseases. Similar methods were instituted in Philadelphia schools in 1896, and New York City started the same kind of work in 1897. At that time school medical inspection consisted solely in having physicians visit the schools each day for the purpose of inspecting all children referred by the teachers as suspected cases of contagious disease. If any possibility of infection was found to exist, the child was excluded and kept under proper quarantine until all danger of infection had passed.

The first marked advance in school medical inspection was inaugurated in 1905 in New York City, and consisted of a program which included making physical examinations of school children with the object of detecting any physical defects and obtaining the necessary medical or surgical care when indicated. Other cities and towns soon took up this type of health care in the schools and within a short interval it became the most prominent feature of school health work. At present, this type of school health supervision is mandatory in five states and permissive in twenty-nine states. The remaining fourteen states have no particular general laws relative to school medical inspection; nevertheless, some work of the kind is being carried on in nearly all of them.

The next advance in school medical inspection was health control of school children, including, as it does, the teaching of health habits. Extension of clinical facilities, special classes, and other health agencies should be mentioned, but the purpose of this paper is rather to deal with the question of the extent of physical defects among school children, the methods we are using to detect these defects, and the results that have been achieved through the use of these methods.

Early methods of detecting physical de-

fects consisted in making physical examinations of the children, grade by grade, starting with children entering school for the first time. Under this system the total number of children examined each year depended upon the amount of money that had been appropriated for the purpose. Later other systems came into use; that is, the children were examined when they entered school for the first time, again in the third and sixth grades, and occasionally before leaving. This method differed from that commonly met with in Europe, where the practice has been to make a physical examination at the time the child enters school and again before it leaves. Within the past few years England has required a third physical examination at a time midway between the first and eighth grades.

As soon as physical examinations of school children were recognized in this country as being important in our health program, many of the states passed laws requiring such examinations to be made of each child once each year. Usually these laws left it for the local communities to raise the necessary money to pay for enforcement of this legislation. Probably everyone who has been connected with school health work is cognizant of the fact that few, if any, communities have ever been able or willing to appropriate sufficient money so that a complete and careful physical examination could be made of each child each year.

I do not think it is too much to say that the type of physical examination we have been making and the results that have been shown have given us no reason to congratulate ourselves either upon the thoroughness of our work or the essential rightness of our policy. We may assume that a thorough physical examination means exactly what is implied by the words. It does not mean a superficial inspection of the child, but does imply a careful determination of the child's physical condition and, consequently, takes time and inevitably costs money. In many cities of this country we have an annual or even more frequent inspection of the children. In very few can it be said that we have annual physical examinations, and even when the latter are carried on, we must acknowledge that they are unsatisfactory.

In some cities a medical inspection is frankly labeled with its real name, and such hasty inspections are often carried on as often as once a month. An inspection of each child to determine its health status has a certain value and is a perfectly legitimate part of any system of school medical inspection, but it cannot be stated too emphatically that these inspections are not physical examinations, and in all honesty should never be recorded under that name.

From studies made of appropriations of money in connection with the number of children to be examined in various communities, it seems evident that the laws which have been passed in regard to annual physical examinations of school children cannot be literally obeyed. Physical examinations take time and are expensive. In our desire to obey the letter of the law, we have neglected its spirit. Our present task is to place the work of physical examination of school children on a self-respecting basis, determine its necessity, the number of physical examinations the child requires during its school life, and the methods that should be used in order that these examinations may be productive of the greatest good.

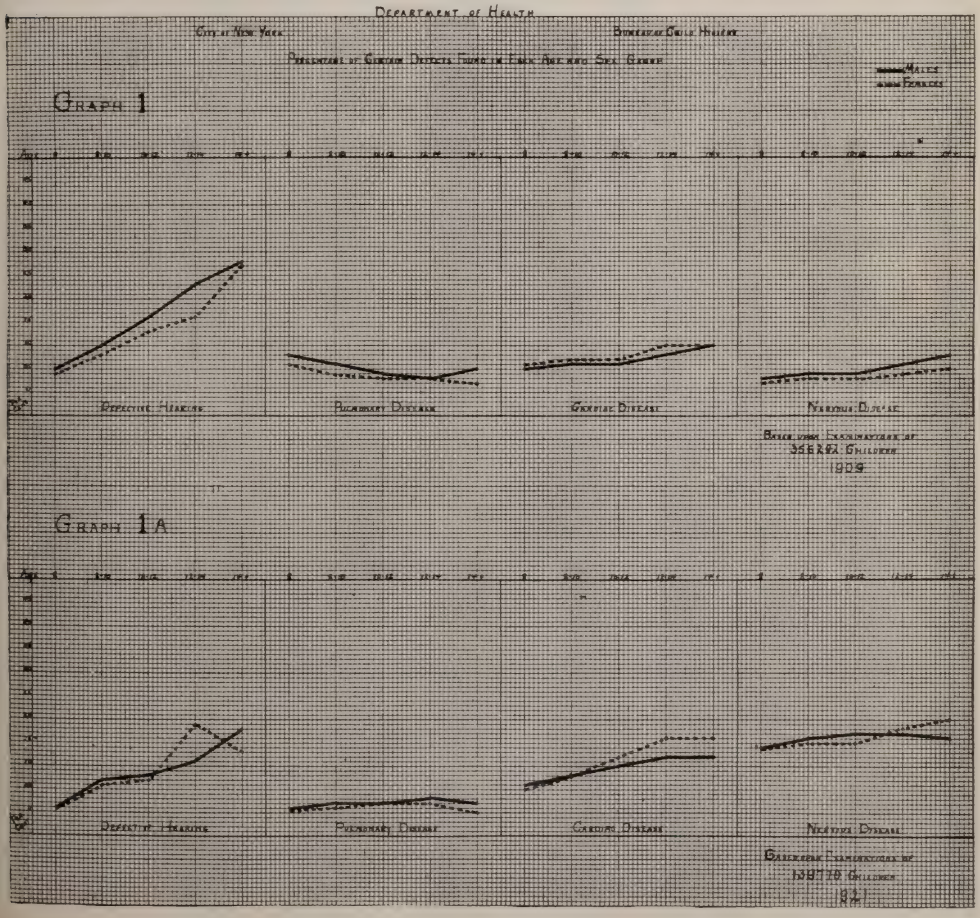
Another point with regard to physical examination of school children that we must all have noted is the remarkable uniformity of various communities as to the percentage of certain physical defects that are found each year. There has been very little, if any, change in this regard in the reports of cities and towns during the past ten years. We can state almost definitely in advance the relative percentage of defective vision, adenoid growths or hypertrophied tonsils that will be found in any community. Moreover, this percentage varies little from year to year. A statement of the actual

amount of work performed and the abnormal conditions existing has seemed in many instances to be the main factor in these reports.

May we not, then, acknowledge that with very few exceptions cities and towns are not prepared to spend the amount of money necessary to give each school child a complete physical examination each year? Ought we not also to acknowledge that our program for the physical examination of children has been based upon a desire to do a large amount of work and examine a correspondingly large number of children, rather than upon any definite scientific standard as to the number of times such examinations are needed, or as to the results we may reasonably expect to follow examinations of this type?

This being the case, is it not time for us to face the situation frankly, revise our programs in accordance with definite knowledge, and find out, if we may, how our limited funds can be spent in the way that will be most helpful to the children and in the most economical way as far as the community is concerned?

A study of the extent of physical defects among school children shows that almost universally approximately 35 per cent of the children of school age have one or more physical abnormalities, such as malnutrition, defects of hearing, lung disease, hypertrophied tonsils, adenoid growths, or defective vision. In this 35 per cent are included those who may have defective teeth associated with one or more of the other defects that have been mentioned. As far as defective teeth



INCIDENCE OF DEFECTS FOUND AMONG NEW YORK

(Based on 356,292 children examined in 1909; 139,770 in 1921) The upper row of figures in tive sex having a given defect. The lower row represents

	Number Examined		Defective Vision		Defective Hearing		Hyper. Tonsils		Defective Nasal Breathing	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Under 8.....	.....	.....	.....	.....	.5	.4	30.0	29.0	27.0	23.0
1909.....	96179	89528	.....	.....	480	358	28853	25963	25968	20591
	.....	.....	.....	.....	.1	.09	17.1	16.9	16.1	14.2
1921.....	37916	35309	.....	.....	40	33	6502	5967	6105	5042
8–10 years.....	.....	.....	12.0	14.0	1.0	.8	25.0	27.0	25.0	22.0
1909.....	44052	41551	5286	5817	440	332	11013	11218	10131	9141
	.....	.....	9.1	11.0	.7	.6	13.6	13.5	11.3	11.3
1921.....	14631	14899	1337	1653	102	96	2004	2022	1656	1696
10–12 years.....	.....	.....	17.0	21.0	1.6	1.3	24.0	27.0	23.0	26.0
1909.....	23100	22869	3927	4802	369	297	5544	6174	5313	5945
	.....	.....	11.5	13.7	.8	.7	12.5	12.7	11.7	10.2
1921.....	9114	8710	1054	1200	73	64	1141	1111	1071	896
12–14 years.....	.....	.....	19.0	24.0	2.3	1.6	25.0	27.0	21.0	27.0
1909.....	14553	14470	2765	3472	334	231	3638	3906	3056	3906
	.....	.....	12.2	13.7	1.1	1.9	11.9	12.0	9.5	8.4
1921.....	6917	6625	847	909	78	131	819	795	664	556
14 and over.....	.....	.....	21.0	22.0	2.8	2.7	21.0	22.0	18.0	21.0
1909.....	5180	4810	1087	1058	145	129	1087	1058	932	1010
	.....	.....	13.3	17.2	1.8	1.3	11.0	10.5	8.4	6.4
1921.....	2950	2699	394	466	55	37	326	284	249	175

alone are concerned, statistics are available to show that from 30 per cent to 65 per cent of the children who are otherwise normal have teeth that are in some degree defective. From our personal knowledge we may assume that every child between the ages of five and fifteen years needs dental care. Annual physical examination of these children will do no more than reveal the dental defects that we already know exist, and we have the knowledge at the present time that would lead us to believe that a system of oral hygiene reaching every child in the school is an essential part of our health program.

In order, then, to detect the physical defects that exist in 35 out of every 100 children, we annually examine 65 normal children in every 100, in addition to the 35 that are physically abnormal. Here at the outset is a waste of time and money, a waste, moreover, that results in hasty and inadequate attention to the children who are in urgent need of proper medical care.

In order to establish an economical and scientific basis for physical examination of school children, it is necessary for us to know the age and sex incidence of the occurrence of physical defects. School hygienists are, I believe, agreed that physical defects should be discovered as soon as possible after they first occur and before they have had time to give rise to the secondary symptoms or sequelæ which, by their severity, may often be of more importance than the original defect.

An attempt to solve some of these problems is the reason why the studies which are reported upon in this paper

CITY SCHOOL CHILDREN IN AGE PERIODS BY SEX

each age group and year represents the percentage of all children examined of the respec- the total number of such defects found in each group.

	Defective Nutrition		Pulmonary Disease		**Cardiac Disease		*Nervous Disease		Defective Teeth		Ave. per 100† / Tot. defects ‡	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Under 8.....	3.6	3.9	.8	.6	.5	.6	.3	.2	62.0	61.0	124.	118.
1909.....	3462	3491	769	537	480	537	289	179	59630	54612	119931	106268
	17.0	16.7	.1	.08	.6	.5	.4	.4	60.3	57.7	113.	107.
1921.....	6452	5924	43	29	228	174	182	142	22876	20396	42779	38050
8–10 years.....	4.1	4.2	.6	.4	.6	.7	.4	.3	67.0	63.0	133.	132.
1909.....	1850	1703	264	166	264	290	176	125	29514	26177	58938	54969
	19.2	19.2	.2	.1	.8	.8	.6	.5	59.5	60.3	115.	117.
1921.....	2812	2856	30	21	124	130	96	77	8719	8997	16880	17548
10–12 years.....	2.8	3.6	.4	.3	.6	.7	.4	.3	53.0	51.0	122.	131.
1909.....	646	823	92	68	138	160	92	69	12243	11663	28364	30001
	20.5	21.0	.2	.2	1.0	1.2	.7	.5	53.9	52.7	113.	113.
1921.....	1876	1827	21	18	98	108	64	48	4916	4597	10314	9869
12–14 years.....	2.7	2.5	.3	.3	.8	1.0	.6	.4	47.0	44.0	119.	105.
1909.....	392	361	43	43	116	144	87	58	6839	3183	17270	15304
	17.9	17.4	.3	.2	1.2	1.6	.7	.8	44.4	42.9	99.	99.
1921.....	1244	1157	24	12	86	108	54	55	3074	2842	6890	6565
14 and over.....	2.4	2.2	.5	.2	1.0	1.0	.8	.5	42.0	43.0	108.	113.
1909.....	124	105	25	9	5	4	41	24	2175	2068	5621	5465
	14.7	15.1	.2	.07	1.2	1.6	.6	1.0	43.9	35.0	95.	88.
1921.....	435	406	7	2	36	44	19	28	1297	946	2818	2388

*Chorea of old table is compared with nervous disease in present table.
**Cardiac disease of old table is compared with cardiac disease organic of present study.
†Average number of defects found per 100 children examined (upper line).
‡Total number of defects found (lower line).

were undertaken. The purposes of the study were to determine:

1. When physical defects occur; that is, at what age they may be found for the first time.
2. How many physical examinations are necessary during the school life of the child.
3. When physical examinations are most necessary in relation to the age of the child.

In order to answer these questions in a direct way, a study was made in 1909 by the Bureau of Child Hygiene of the Department of Health of New York City. This study included an analysis of physical defects found in a total of 356,292 children who had been examined. Physical defects were tabulated by sex and age groups—6 to 8 years, 8 to 10 years, 10 to 12 years, 12 to 14 years and 14 years and over. In 1921 a similar study was made of 139,770 children of the same age groups in order to determine the different conditions, if any, existing at this later period and to determine whether or not post-war conditions have caused any alteration in either sex or age incidence of the physical defects in question.

The accompanying graphs show the results of both studies in detail, the table giving the figures upon which the graphs are based:

GRAPHS 1 AND 1A

Graphs 1 and 1A show the incidence of defective hearing, pulmonary disease, cardiac disease and nervous disease in the different sexes and in the various age groups. It will be seen that in both the 1909 and the 1921 studies these diseases show little variation during school life.

Defective Hearing: In the 1909 study defective hearing ranged from .5 per cent at the eight years and under period to 2.8 per cent at fourteen years and over. Here we have an increase during school life, common to both boys and girls, although it is neither marked nor extensive, and the total number of defects found comprises an inconsiderable percentage. Analysis of the causes of defective hearing would lead one back to the question involved in the prevention of infectious diseases, particularly scarlet fever. It is not probable that conditions of school life affect in any marked degree the prevalence of defective hearing in school children.

Practically the same conditions were found in the 1921 study, although here the incidence of defective hearing ranges from .1 per cent at eight years and under to 1.8 per cent in the twelve to fourteen year group. The analysis, however, would seem to be the same as that for the preceding study.

Pulmonary Disease: In the 1909 study pulmonary disease ranges from an average of .7 per cent at the eight year and under group to an average of about .4 per cent in the fourteen years and over group.

In the 1921 study pulmonary disease ranges from .1 per cent in the eight year group to .2 per cent in the fourteen years and over group.

There is, therefore, nothing to indicate that school life has any effect upon pulmonary disease; that is, as far as increasing its incidence is concerned. In fact, the general tendency in the earlier study was downward. In the later study the difference in incidence between the different age groups is so slight that it can hardly be marked. It is interesting also to call attention to the relatively small proportion of cases of pulmonary disease detected in school children at any age.

Cardiac Disease: In the 1909 study cardiac disease showed an average incidence of .5 per cent at eight years or under, rising to an incidence of 1 per cent at fourteen years and over.

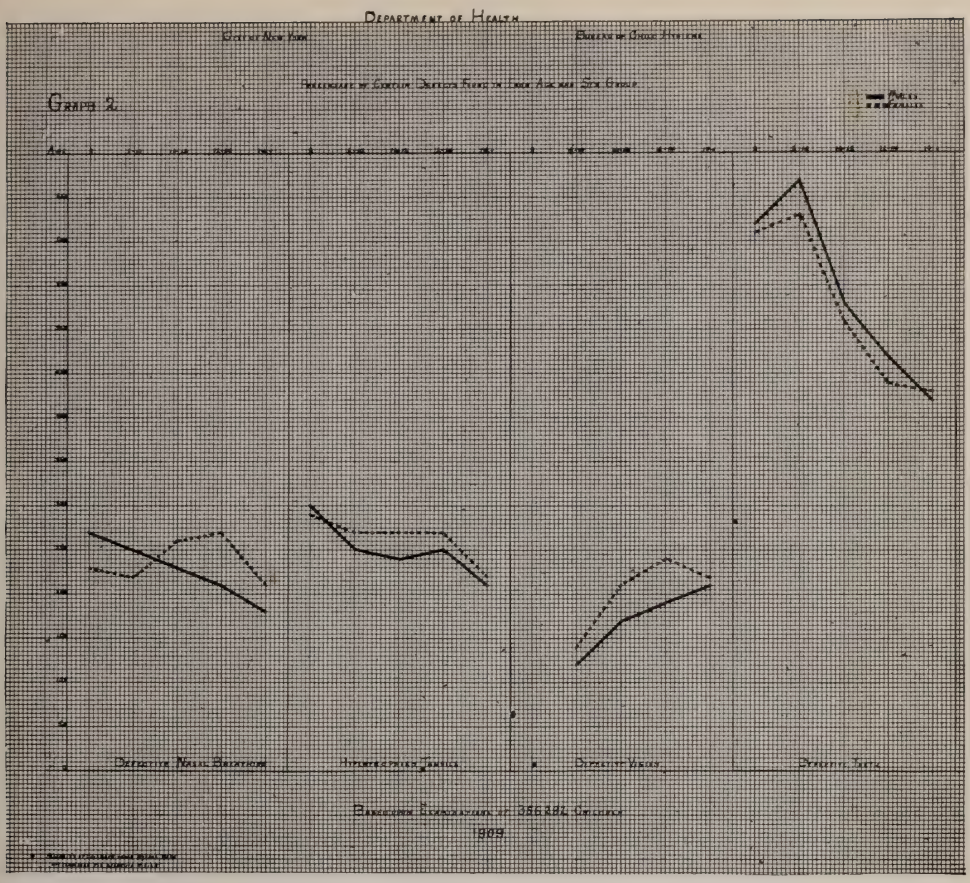
In the 1921 study a slightly higher incidence and greater increase is shown; that is, at eight years and under cardiac disease was present in .5 per cent of the cases and at fourteen years and over it was found in approximately 1.4 per cent of all cases examined.

Here, again, there is little to show the effect of school life upon the production of cardiac disease, the incidence remaining about the same throughout the life of the child. There is, however, a difference between the 1921 incidence and the 1909 incidence that may possibly be due to the fact that more attention has been paid to cardiac disease and may be accounted for by better methods of diagnosis. However, the increase is slight and the incidence itself small. Moreover, the incidence remains with slight variation almost the same throughout the school life of the child.

Nervous Diseases: In the 1909 study nervous diseases showed an incidence of .3 per cent at eight years and under, rising to .7 per cent at fourteen years and over.

In 1921 the incidence of nervous diseases at eight years and under was .4 per cent and at fourteen years and over approximately .8 per cent.

We have felt that school life was largely responsible for nervous diseases in children. These statistics would not seem to bear out such a conclusion, as the incidence in both studies remains about the same throughout the school life of the child, the upward tendency being very small and the total number of cases inconsiderable.



GRAPHS 2 AND 2A

Graphs 2 and 2A show the incidence of defective nasal breathing, hypertrophied tonsils, defective vision and defective teeth in various sex and age groups.

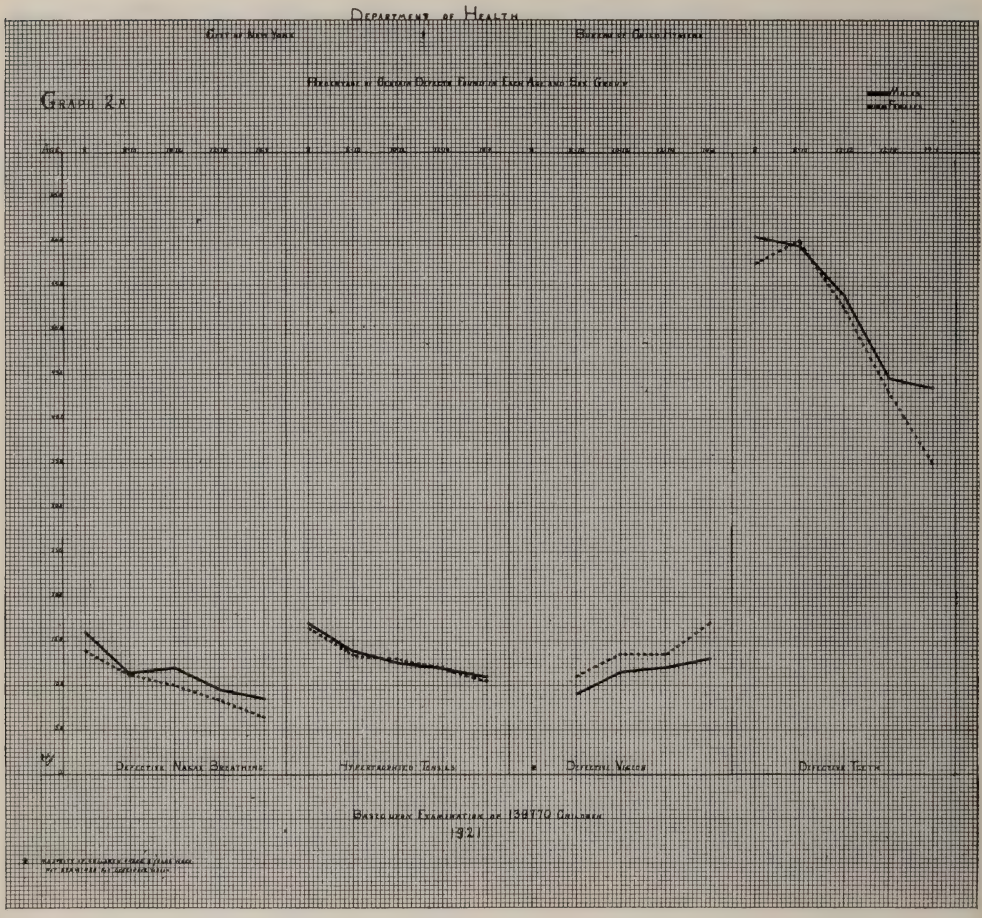
Defective Nasal Breathing: In the 1909 study defective nasal breathing was present in approximately 25 per cent of the children examined. In the case of boys its incidence shows a continuous decline to 18 per cent at fourteen years and over. With girls, a rise is shown from the eight to ten age group to the twelve to fourteen year group, and thereafter a decrease until the fourteen years and over period is reached, with an incidence of approximately 21 per cent.

In the 1921 study defective nasal breathing starts at an average of 15 per cent and shows a steady and persistent decline to about 7 per cent at the fourteen years and over group.

Hypertrophied Tonsils: In the 1909 report there was an average of about 30 per cent with a decline in a fairly irregular manner until it reached an average of 22 per cent at the fourteen years and over period.

In the 1921 study hyperthrophied tonsils were noted in 17 per cent of the cases at eight years and under, the incidence gradually decreasing to 11 per cent at fourteen years and over.

Defective Vision: In contradistinction to the two preceding defects, defective vision shows a persistent upward tend-



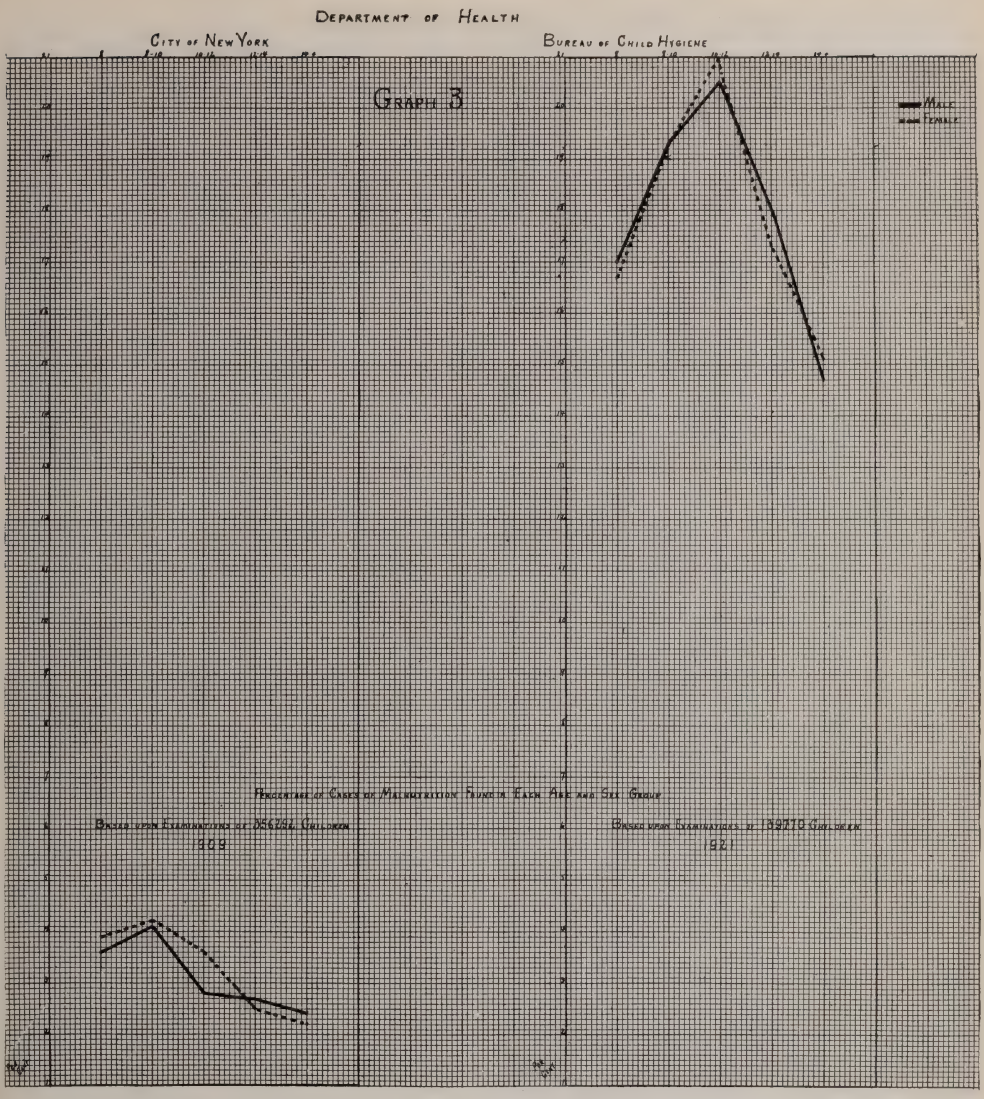
ency. In neither study—1909 or 1921—was any attempt made to test the vision of the children under eight years of age; so the statistics begin with the eight to ten year group.

In the 1909 study it was found that an average of 13 per cent of the children had some form of defective vision. This incidence increased throughout the school life of the child until at fourteen years and over 22 per cent of the children were found to have visual defects.

In the 1921 study 10 per cent of the children were found to have defective vision at eight to ten years and an average of 15 per cent at the fourteen years and over period.

Defective Teeth: In the 1909 study defective teeth were found in about 62 per cent of the cases in the eight years and under period. This incidence showed a sharp increase up to the eight to ten year group, thereafter showing an equally marked decline until at fourteen years and over the percentage of children with defective teeth amounted to about 43 per cent.

In the 1921 study the incidence of defective teeth in the eight years and under period was about 58 per cent. The decrease thereafter was fairly well marked until in the fourteen years and over group about 40 per cent of the children were found to have dental defects.

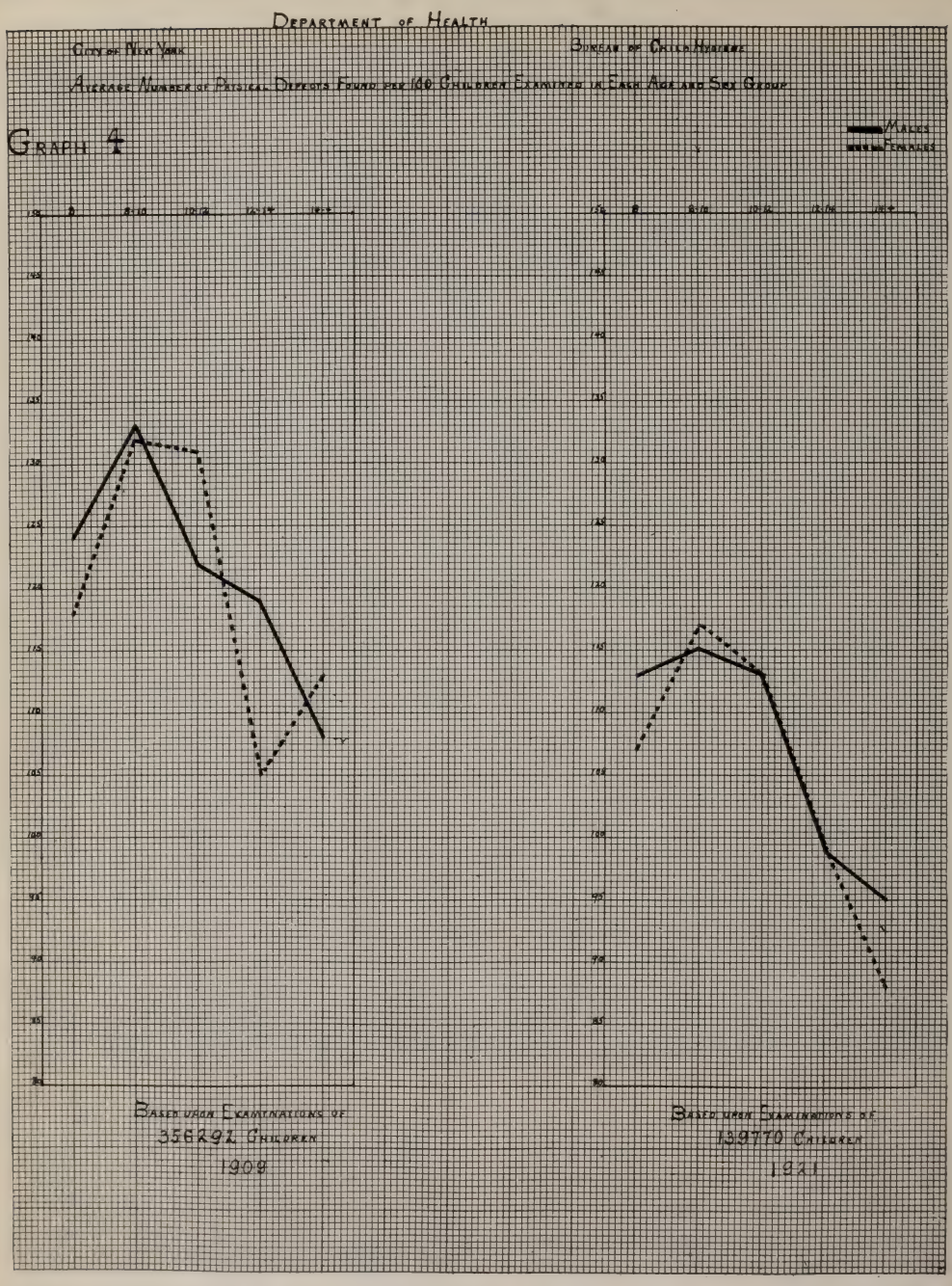


GRAPH 3

Defective Nutrition: A separate graph has been used to show the incidence of defective nutrition because in the case of this defect such a marked difference was found to exist between the years 1909 and 1921.

As may be seen, the study for 1909 showed that about 3.8 per cent of the children had defective nutrition at the eight years and under period. This percentage increased until the eight to ten year period was reached, then decreased until the fourteen years and over group when 2.3 per cent of the children examined were found to be undernourished.

In the 1921 study undernourishment showed a far different aspect. Here the percentage of nutrition is approximately 17 per cent at eight years and under. The incidence increased very rapidly until it reached 21 per cent at the ten to twelve year group then fell off with marked suddenness, so that the children in the fourteen years and over group showed approximately 15 per cent of undernourishment.



GRAPH 4

Total Number of Physical Defects Found in Each Age and Sex Group: Graph 4 is based upon the average number of physical defects found per 100 children in each of the various age and sex groups that have been studied. It may be seen that the 1921 study shows a marked reduction in the total number of physical defects as compared with the 1909 study, nevertheless, the relative age incidence of defects remains somewhat the same.

In the 1909 study there was an average of about 1.2 defects to each child examined in the eight years and under group. This rises gradually to approximately 1.33 defects to each child in the eight to ten year group and then shows a somewhat irregular decline to the fourteen years and over period.

In the 1921 study the average number of physical defects per child is 1.1 at eight years and under, increasing to approximately 1.15 per child at eight to ten years, then falling rapidly to an average of .93 per child at the fourteen years and over period.

SUMMARY

In analyzing the results of this study in physical defects found in school children, the following points seem worthy of emphasis:

1. The less common and more chronic defects, such as pulmonary disease, cardiac disease and nervous disease remain at about the same level throughout school life, and are apparently influenced little, if at all, by the school environment.

2. Defective hearing and defective vision show a steady and persistent increase from the entering age to the leaving age throughout the school life of the child. In the case of defective hearing, however, the increase is relatively small; in the case of defective vision, the increases is more marked.

3. Malnutrition, defective nasal breathing (implying the presence of adenoids), hypertrophied tonsils or diseased tonsils and defective teeth show their highest incidence either at the entering age or at the eight to ten-year period, thereafter showing a fairly persistent and regular decline.

4. While the incidence of physical defects in all age groups is lower in the 1921 study than in the 1909 study, the relative age incidence remains approximately the same, the percentage of defects found at each age bearing about the same relative position in both studies.

5. The physical examinations and follow-up work for school children in the years intervening between 1909 and 1921 have evidently reduced the total number of physical defects, with a resultant raising of the health standards of the children examined. They have not, however, resulted in a change in the relative age ratio of the physical defects encountered.

CONCLUSIONS

The conclusions reached as a result of this study are:

1. The most important physical examination to be made in the school life of the child is the one occurring at the time the child enters school for the first time.

2. In order to make the work of health supervision of school children effective, a complete physical examination of each child should be made before the eight to ten year period. If this can be done with 100 per cent efficiency, combined with follow-up that is 100 per cent effective and 100 per cent of treatments obtained, it should not be necessary to make regular physical examinations after the eight to ten year period, reliance being placed after that time upon the routine inspection of the children in the class-room. This routine inspection will permit the nurse, doctor or teacher to pick out the cases of physical defects that have been in any way overlooked during routine physical examinations or which have originated after the eight to ten year period.

3. An annual test for defective vision is desirable.

4. Unless the amount of money appropriated for school medical inspection is large enough to allow a complete and thorough physical examination each school year, the officials in charge of such work are not justified in spending any money in having physical examinations made after the eight to ten-year period unless the full health needs of the children below that age period have been met.

5. A logical deduction that might be drawn from this study is that great emphasis should be placed hereafter upon the preschool age period as the time when physical defects should be prevented or corrected.

6. To sum up the matter, this study would seem to show that the expenditure of time and money to make annual physical examinations of school children is not warranted and seems to be unnecessary. Analysis of the age and sex incidence of physical defects in this study shows that proper and adequate physical examinations made in the early life of the school child—that is, before the eight to ten-year period—are essential, and if these are properly followed up and suitable treatment obtained, the appropriation for this work will be spent in the most economical way, the child's health will be more thoroughly protected and future disease and the sequelæ of physical defects be more adequately guarded against than by any of the present methods of school health supervision.

□

INFLUENZAL MENINGITIS

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Read before the Laboratory Section of the American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 14, 1921.

THE study[1] of thirteen strains of influenza bacilli isolated from the meninges or spinal fluids of patients with influenzal meningitis showed that eleven were alike culturally. These eleven strains were closely allied, as shown by agglutination tests. By absorption of the agglutinin test two main groups were found: Group I of seven strains, Group II of three strains, and one intermediate strain. From three of the patients with meningitis, blood culture strains also have been studied. These belong to the same group as the corresponding meningeal strains. This is contrary to the findings of Anderson and Schultz[2] who reported that the meningeal strain and the blood culture strain from the same patient were different immunologically. Fourteen strains from sputa, lungs and bronchi, and four blood culture strains from patients with pneumonia following influenza have been compared with these meningeal strains. Many of the respiratory strains were different from the meningeal strains culturally, and none of the respiratory strains studied was identical by absorption of the agglutinin test with the meningeal strains.

These facts suggested that influenza bacilli causing meningitis might be a group by themselves. Even though *B. influenzae* should not be the cause of influenza, it would be hard to deny the presence of these organisms in increased numbers during the last epidemic of influenza. Then, if the respiratory strains were the cause of meningitis, an increase in influenzal meningitis should have occurred during the epidemic of influenza regardless of the etiology of influenza. In Chicago[3] there was no increase of influenzal meningitis during the epidemic of influenza. In New York[4] only one case occurred during the epidemic of 1918. There was, however, a slight increase in the number of cases for the years 1916, 1917, 1918 and 1919. In Baltimore, on the other hand, there was a distinct increase during the years 1917, 1918, 1919 and 1920. In spite of this increase, no definite relation between influenza and

influenzal meningitis can be discovered, as the majority of the cases of the latter disease did not occur during the epidemics of influenza.

The meningitic strains of *B. influenzae* are not the same as the respiratory strains isolated at that time. One hundred and ninety-three cases of influenzal meningitis have been collected from the literature, and the striking thing is that the greatest number that occurred in one year was in 1910 when there had been no epidemic of influenza and when many of the investigators reporting the cases could not find *B. influenzae* in the usual yearly run of grippe patients. In different localities there seems to be a marked fluctuation in the number of cases of influenzal meningitis, and some[5] go so far as to speak of little epidemics of this disease. In the majority of the reported cases, and of the twenty-two seen in Baltimore, the meningitis followed no other infection; it seemed primary, and many of the autopsies revealed no condition to which the meningitis might have been secondary.

Pneumonia in Baltimore is more prevalent after Christmas. Most of the influenzal meningitis occurred during the months of October, November, December and January before the pneumonia season begins. The majority of the cases of influenzal meningitis reported by Neal[4] in New York occurred during the months of October, November and December. In 1911 Holt[6] showed that in New York the curve of tuberculous meningitis, plotted by months, follows the curve of deaths from pneumonia. The peaks of these curves come well after Christmas, in March and April. The etiology of tuberculous meningitis and ordinary pneumonia can not be confused, and Holt suggested that the curves paralleled each other because acute respiratory diseases tended to cause a flare up and a dissemination of tuberculosis. In the past, influenzal meningitis has been considered by some observers secondary to influenza or other acute respiratory diseases,[7] yet the curve of influenzal meningitis does not follow the curve of deaths from pneumonia as well as tuberculous meningitis does.

A certain number of cases of influenzal meningitis, these, however, well in the minority, are without a doubt secondary to mastoid and other similar infections. The strains of influenza bacilli producing the meningitis under these conditions may be like other respiratory strains in regard to virulence, biological and serological reactions. The failure to recognize the various groups of influenza bacilli may account for the multiplicity of opinions about the meningitic strains, as well as about the respiratory ones.

The facts presented suggest that influenzal meningitis in many instances may be a disease caused by a special group of organisms. In view of these facts further efforts to prove or disprove this statement should be made. In the meantime an antiserum to the proper strains should be used in treating influenzal meningitis.

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**Remember the Fifty-first Annual Meeting,
Hotel Statler, Cleveland, Ohio, October 16-19, 1922.**

A STUDY OF THE PRACTICAL VALUE OF THE FROST LITTLE PLATE METHOD IN THE ROUTINE COLONY COUNT OF MILK SAMPLES

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Read before the Laboratory Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 15, 1921.

THE method of growing bacteria in solid media on sterile slides was applied by W. D. Frost in 1915 to the routine bacteriological examination of milk. It was called by him the "little plate" method.

This method is a modification of the standard plate method for milk analysis in that the standard agar for milk work is used and the result obtained is a computation of the number of colonies per cubic centimeter of milk developing under conditions essentially those of the standard plate procedure. Since 1915, Frost, working at the University of Wisconsin, has repeatedly modified and simplified the technic and improved the necessary apparatus.

The present technic of the little plate method is not difficult. An assistant with good general laboratory training can learn to make the test without difficulty; workers with less general experience gain proficiency more slowly, but a few days' practice will usually suffice for accurate results.

The method* in brief is described by its author as follows:

Two areas of four square centimeters each are marked off with a wax pencil on an ordinary microscopic slide which has been carefully polished. The slide is sterilized by passing it back and forth through a Bunsen flame. It is then laid on the flat top of a copper box containing water at a temperature of 42°-45° C. The milk sample is shaken gently to avoid the formation of foam, then 0.05 (1/20) c.c. of the milk is measured from a "serum pipette" (a narrow, accurately calibrated pipette measuring 0.2 c.c. graduated to 0.01 c.c.) on to the ruled area at the left end of the slide, and the same amount on the right end of the slide. An approximately equal amount of sterile nutrient liquified agar at 42°-45° C. is added by allowing one drop to fall from a 1.0 c.c. pipette upon each measured drop of milk sample.

The milk and agar are thoroughly mixed with a sterile loop and carefully spread over the marked-off areas. This gives duplicate films. The preparation is set aside to solidify on a level surface under cover, and then, before the agar begins to dry down, the slide is placed in a moist sterile chamber. This moist cabinet is set in the incubator. The period of incubation should be long enough to allow the bacteria to grow into definite colonies, although they need not necessarily be visible to the naked eye. It is stated that four hours' incubation at 37.5° C. allows the formation of good-sized colonies if the bacteria are actively growing in the milk at the time of testing. If the milk has come from cold storage, has been pasteurized, or is fresh and contains few bacteria, then seven or eight hours are necessary. If there is no particular hurry about the results, the plates can be left in the incubator from one day to the next, i. e., for fifteen or sixteen hours.

When the slides are removed from the moist chamber after incubation, they are dried immediately at a temperature of about 95° C. If only a few slides are to be dried, they can be laid on the surface of the above mentioned copper box, which will give a temperature of about 95° C. if the box is filled with boiling water. Where large numbers of slides are to be dried, an electric oven is necessary. This temperature dries the agar films quickly enough to prevent the film from cracking or peeling. The drying is accomplished in five minutes or less.

The slides are now ready for staining. They are first immersed for a minute or two in 95 per cent alcohol containing 10 per cent of glacial acetic acid to prevent the agar back-

*Frost. W. D., Improved Technic for the Micro or Little Plate Method of Counting Bacteria in Milk. *Jour. Inf. Dis.*, Vol. xxviii, No. 2, p. 176.

ground from taking a deep stain. The acid alcohol is drained off and the slides are then put into the stain. This may be either Loeffler's methylene blue diluted with three times its volume of distilled water, or thionine blue made up with carbolic acid and distilled water with the addition of acetic acid. The stain will act sufficiently in about two minutes, but no harm will result from a longer exposure. The slides should be thoroughly washed in tap water, then dried at about 95° C. on a hot plate or in an electric oven as described above.

The counting is done under a compound microscope. If the colonies are small or very numerous the higher powers must be used; if the colonies are larger and fewer the low power may be used. A number of fields are counted and an average count per field obtained. In order to express the result of the count in terms of "colonies per c.c." of milk, it is necessary to know the area of the microscopic field. To determine this, the diameter of the field is read off on a stage micrometer, the radius is obtained by dividing the diameter by two and the following geometrical formula applied:

The area of a circle=radius squared X 3.14159

Then divide the area of the microscopic field into the total area of the film (4 square centimeters) and multiply the result by 20 because only 0.05 c.c. of milk is used to make the test. The result is a constant by which the average count per field must be multiplied in order to convert it into "colonies per c.c." of milk. This multiplier is a constant for each combination of lenses so tested but must be determined again for each microscope and for each new combination of lenses.

Heavily contaminated milk samples require dilution before this test can be carried out. The dilution advised is 1.0 c.c. of the milk to be tested in 9.0 c.c. of sterile milk. After thorough mixing, the diluted sample is used in exactly the same way as the ordinary sample. Another way, simpler than this, is also recommended: 0.01 c.c. or 0.02 c.c. of the undiluted milk sample is pipetted on to the ruled slide, a drop of warm sterile milk and the usual drop of agar added,—the whole mixed and spread in the usual way.

The advantages claimed by Frost for the little plate method are:

1. The time required to set up the little plate test is less than that needed for the standard plate test.
2. The incubation period is shortened so that routine results can be obtained in twenty-four hours and, in special cases, results can be obtained the same day.
3. The technic of the little plate method is simpler than the technic of the standard plate method.
4. The little plate method requires less material in the way of glassware and media. There is a corresponding saving of labor and expense in preparing these supplies.
5. It permits a study of a relatively large amount of milk, usually 0.05 c.c.
6. The slides are permanent preparations and can be filed for record and reëxamined whenever the need arises.
7. The method furnishes direct information about the types of organisms present, their relative numbers, etc.
8. It is a method easily adapted to field work.

To determine how far the Frost little plate method is applicable to the work of a large routine milk laboratory run for administrative purposes, we have carried out an extensive series of tests on all grades of milk, controlling the test in all cases by standard plate counts. Whenever it was possible to do so, the standard plate was made in duplicate. A few minor changes have been made in the Frost technic where such modifications would expedite the work or make the test more like the standard plate method.

Our most important modification of Frost's technic concerns the shaking of the milk sample. Frost tips the sample bottle from end to end slowly enough to avoid the formation of foam, since air bubbles drawn into the pipette would interfere with the accuracy of measurement. For routine work, the manner of shaking milk samples is minutely prescribed by standard methods; it is a vigorous shake and will break up clumps more than the shaking recommended by Frost. In order to make a comparative study, with the standard plate results as

the basis for comparison, it seemed essential to shake the milk sample in the same manner for both tests. In our laboratory, therefore, the sample is shaken in the manner prescribed by standard methods and then both tests are immediately carried out. Tipping the bottle after shaking causes the foam to float to one side and the milk can be drawn into the pipette without including air bubbles, thus overcoming the objection mentioned by Frost.

To save the time consumed in ruling the slides, a Wolf-Hugel counting plate is placed upon the warm box and the sterile slides placed upon the counting plate. The ruled lines of the counting plate are clearly seen through the slide and the milk-agar mixture is carefully spread over four square centimeters of the slide as defined by the lines beneath. Although we lose the advantage of having the mixture flow back from a greased line, we accomplish a slight saving in time on each test and this saving becomes considerable as the number of tests increases.

After staining the film, we prefer to decolorize slightly. This technical point was mentioned by Frost in his earlier articles, but is not mentioned in his most recent article. The count seems to be uninfluenced by decolorization if this is not carried too far. A few seconds in alcohol are all that should be allowed. Films that have been overdecolorized may easily give too low a count as unstained colonies cannot always be picked out with accuracy.

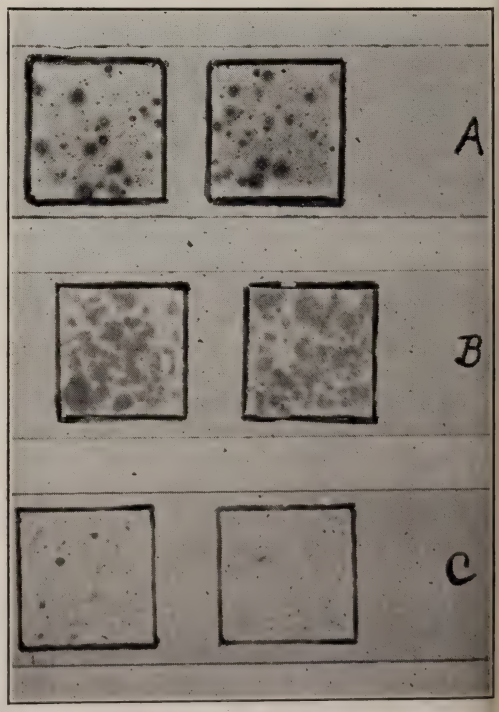
The accompanying photograph shows the stained preparation ready for counting.

In all the work used as the basis for this article, only one-time period for incubation has been employed. The moist chamber containing the slide preparations was put into the incubator at 5 p. m. and was taken out at about 8 a. m., thus making a fifteen to sixteen hours' incubation. As pointed out by Frost, it is desirable to incubate over night when dealing with the test in a routine way, otherwise it is necessary to be at the laboratory out of hours. With a large volume of routine work, the overnight incubation is important to the indorsement of the method. Although Frost's work is based upon an incubation period of four to eight hours, the overnight incubation is equally recommended by him. It is probable that any difference in results is rather in the size of the colony than in the count.

When we began this work, colony counts were made in an absolutely mechanical way by counting five or ten fields of each film, going diagonally across the film in both directions and averaging these results. As the work went on, however, and our experience grew, we

PLATE SHEET

The appearance of the little plates after staining is shown in the accompanying photograph.



Little plates in duplicate on slides after staining (fifteen hours incubation).
A—Moderate number of colonies.
B—High count, more uniform colonies.
C—Small number of colonies.

TABLE I. COMPARATIVE COUNTS ON MILK SAMPLES WITH SPECIAL REFERENCE TO THE USE OF VARIOUS OBJECTIVES.

COLONIES PER C.C. OF MILK.

Sample No.	Frost Little Plate Method				Standard Plate Method	
	Amount Tested	#3 Objective	#6 Objective	Oil Immersion	Dilution Used	Count per c.c.
1	.05 c.c.	Overcrowded	.....	2,360,000	.....	.....
	.01 c.c.	2,741,892	2,624,958	2,000,000	1:1,000	2,500,000
2	.05 c.c.	37,996	60,416	90,000	1:1,000	65,000
	.01 c.c.	*	*	*		
3	.05 c.c.	172,983	183,330	220,000	1:1,000	224,000
	.01 c.c.	114,433	187,497	too few	1:10,000	210,000
4	.05 c.c.	34,330	70,832	80,000	1:1,000	45,000
	.01 c.c.	*	*	*		
5	.05 c.c.	Overcrowded	1,894,279	1,973,552	1:10,000	11,000,000
	.01 c.c.	4,452,000+	4,977,989?	3,788,515		
6	.05 c.c.	595,720	572,689	722,461	1:10,000	1,200,000
	.01 c.c.	1,297,440	678,416	704,840		
7	.05 c.c.	Many millions	Many millions	Many millions	1:100,000	223,200,000
	.01 c.c.	Many millions	Many millions	Many millions		
8	.05 c.c.	Overcrowded	4,390,000?	Colonies run together	1:100,000	27,000,000
	.01 c.c.	11,872,000	14,096,960?	7,224,610		
9	.05 c.c.	1,225,360	1,057,272	1,074,881	1:10,000	2,400,000
	.01 c.c.	1,250,800	1,718,067	1,057,250		
10	.05 c.c.	Many millions	Many millions	Colonies run together	1:10,000	124,620,000
	.01 c.c.	Many millions	10,572,720	9,162,920		
11	.05 c.c.	Overcrowded	1,392,075	1,797,342	1:1,000	3,200,000
	.01 c.c.	3,697,280	2,731,286	2,746,655		
12	.05 c.c.	529,900	405,288	334,799	1:1,000	776,000
	.01 c.c.	712,320	616,742	792,945		
13	.05 c.c.	Many millions	Many millions	Many millions	1,10,000	137,640,000
	.01 c.c.	Many millions	Many millions	32,775,060+		
14	.05 c.c.	3,595,520+	4,365,330?	2,625,529	1:10,000	10,800,000
	.01 c.c.	6,784,000+	5,286,360?	Colonies indistinct		
15	.05 c.c.	850,120	740,090	599,114	1:10,000	1,100,000
	.01 c.c.	1,036,680	660,795	Growth too diffuse		
16	.05 c.c.	295,104?	208,376	881,050?	1:100	273,000
				Diffuse growth	1:1,000	400,000
	.01 c.c.	560,740	*186,050	*176,210?	1:10,000	350,000
17	.05 c.c.	62,208	54,573	*	1:100	36,000
	.01 c.c.	58,300	*	*	1:1,000	51,000
					1:10,000	120,000
18	.05 c.c.	24,168	24,807	*	1:100	24,000
	.01 c.c.	27,560	*	*	1:1,000	28,000
					1:10,000	100,000
19	.05 c.c.	366,316	282,796	328,925	1:100	227,500
	.01 c.c.	312,640	*	*	1:1,000	584,000
					1:10,000	500,000
20	.05 c.c.	35,616	*	*	1:100	28,800
	.01 c.c.	46,640	*	*	1:1,000	53,000
					1:10,000	60,000

Samples Nos. 3, 5, 7, 10, 13, 16, 19 were diluted 1:10 to make samples Nos. 4, 6, 8, 11, 14, 17, 20 and these in turn were diluted 1:10 to make samples Nos. 9, 12, 15 and 18.

NOTE: These milks contained an excessive number of lactic acid bacteria, having been incubated at room temperature over night.

*Too few for accurate count.

found that with ordinary care in making the films, the colonies were so evenly distributed that equally accurate results could be obtained by counting two or three representative fields from each film. It is preferable to do this with a mechanical stage.

Some of the assistants in our laboratory have also been tried out on the counting. They have required little practice before obtaining counts very like our own. It must be borne in mind, however, that these girls have had years of experience in counting milk plates. Their opinion is that the stained little plate preparation is easier to count and entails less eye strain than does the standard milk plate.

As a rule, the count is not radically affected by the choice of an objective. (See Table 1.) Of course, where the count is very low, the oil immersion is impracticable because many fields will show no colonies; hence it is difficult to get a true average count per field, and the factor for multiplication is so large that a slight variation in the average count is multiplied enormously.

If the milk has a very high bacteria content, the field under the low power is too overcrowded to be accurately counted and the oil immersion is much more satisfactory. In the latter case the count may be too low even with the oil immersion because of the inhibition of colony development due to overcrowding, hence the testing of a smaller amount of milk is indicated.

In either case, the important fact for grading purposes is easily ascertained—a very high or a very low count is quickly recognized and a medium count can be made with any objective. Occasionally a milk is found which gives a higher count when the magnification is increased. This may be due to a different type milk or to artifacts. (See Table 2.) These cases require further study. In this connection, it must be borne in mind that the oil immersion shows the individual bacteria and that clumps of these cannot, at times, be differentiated from beginning colonies. The possible effect of an unusual flora is shown by the following case:

Thirty-nine samples of pasteurized milk, all from one source, were run in parallel by the two methods. The standard plates gave counts ranging from 62,000 to 710,000 per c.c. and showed apparently an almost pure culture of an organism producing extremely small colonies. The Frost plates all gave counts under 10,000 per c.c. when examined with the No. 3 objective. With the No. 6 objective the counts were somewhat higher. With the oil immersion lens very few colonies could be found, but many fields showed a mass of organisms numbering many hundreds, all of the same general appearance, but no denser or more deeply stained in one part of the mass than in another.

Table 2 gives results on five of these samples picked at random.

TABLE 2.

EFFECT OF PRESENCE OF UNUSUAL FLORA

Little Plate Counts Increased with Increased Magnification. Standard Plate Counts Still Higher

Sample No.	Standard Plate Count	Frost Little Plate Count		
		No. 3 Objective	No. 6 Objective	Oil Immersion Objective
894	91,000	6,500	33,333	Diffuse growth instead of colony formation. No Colonies seen.
4062	92,000	6,000	37,499	
7042	62,000	5,333	41,666	
7456	110,000	10,322*	41,666	
599	192,000	2,333	41,666**	

*Possibly much higher count.
**Very indistinct.

In general, the lowest possible magnification consistent with accuracy should be used, because it requires the smallest factors for multiplication and because the oil immersion introduces the danger of including the above-mentioned clumps in the colony count.

The making of proper dilutions in a rapid manner is a matter of great importance. It is true equally for the standard plate and for the little plate that the amount of milk tested should depend upon the probable bacterial content of each sample as indicated by the grade designated on the label. Where the counts are actually far in excess of this, conditions are not suitable for the development of all potential colonies and the count per c.c. is less than it would have been from a higher dilution.

For the better grades of milk, the samples were tested undiluted, using 0.05 c.c. of milk and about an equal amount of agar. For the more highly contaminated milks various ways of examining a smaller portion of milk were tried in order to give the potential colonies room to develop. This, of course, meant a higher factor to be used as a multiplier for the average field. At first, the samples were diluted 1:100, using sterile milk as a diluent; of this dilution, 0.05 c.c. was plated. This technic was unsatisfactory because there were too few colonies in the film.

Next, the milk sample was similarly diluted 1:20 with sterile milk and the usual 0.05 c.c. plated. This method was more satisfactory than the dilution of 1:100, yet often even the 1:20 dilution gave films showing too few colonies. In any case, the making of a dilution was time consuming and we wished to do the work more directly if possible. To this end we tried the examination of 0.01 c.c. of undiluted milk, adding to it 0.04 c.c. of sterile milk and the usual drop of agar. This procedure was time consuming also and the 0.01 c.c. of milk begins to dry down before the sterile milk can be accurately measured and added.

The method in use by us at present for the testing of highly seeded milk samples, consists in the examination of two different quantities of the undiluted milk sample, 0.05 c.c. on the left end of the slide and 0.01 c.c. on the right end of the slide without the addition of sterile milk. This has the advantage of simplified technic and the elimination of a sterile diluent with its attendant work of preparation and possibility of contamination. The lessened milk content of one of the finished preparations does not seem to make as much difference in the count as we anticipated. Although it is easily conceivable that milks containing large numbers of certain types of lactic acid bacteria would fail to show a corresponding colony count in the film containing less milk, yet the same objection is true of the standard plate which actually contains even less milk. As this is a study based on comparisons with the standard plate results, we believe that the above procedure is admissible. Moreover, the finding of a reasonable colony count ratio between two films containing different amounts of the same milk sample is reassuring. It is comparable to the colony count ratio between two or more standard plates containing different quantities of a given milk sample. In each case, due allowance is made for inhibition due to overcrowding. For field work, the elimination of a sterile diluent also means fewer supplies to carry about, a less complicated procedure in an improvised workroom and a shorter time required for setting up the test.

The results of our work, on the whole, have been more clear-cut than we had anticipated. The certified milks showed the smallest average variation from the standard plate result. The pasteurized milks and raw milks to be pasteurized gave greater variations, these being divided about equally between results greater than standard plate counts and results less than standard plate count and ranging from — 28.6 per cent to + 18.7 per cent. Table 3 presents an analysis of the counts obtained from 241 samples of milk tested by both methods. Only recent results are tabulated here because they represent a more experienced handling of the little plate method and the use of 0.05 c.c. and 0.01 c.c. of undiluted samples of raw milk.

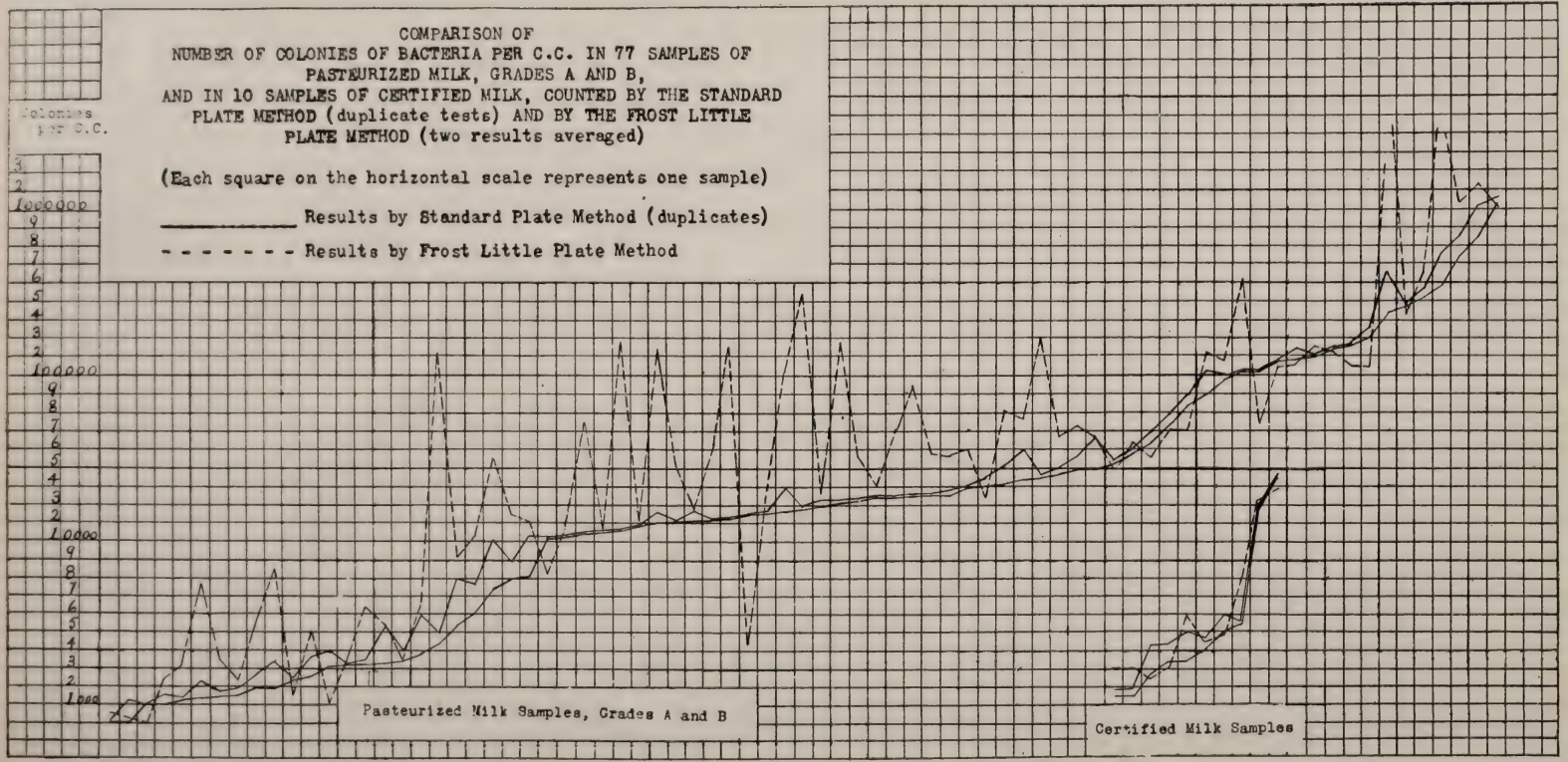

COMPARISON OF
NUMBER OF COLONIES OF BACTERIA PER C.C. IN 77 SAMPLES OF
PASTEURIZED MILK, GRADES A AND B,
AND IN 10 SAMPLES OF CERTIFIED MILK, COUNTED BY THE STANDARD
PLATE METHOD (duplicate tests) AND BY THE FROST LITTLE
PLATE METHOD (two results averaged)
(Each square on the horizontal scale represents one sample)
Results by Standard Plate Method (duplicates)
Results by Frost Little Plate Method
Colonies per C.C.
Pasteurized Milk Samples, Grades A and B
Certified Milk Samples

CHART 1

These percentages are somewhat higher than those obtained from duplicate standard plates made during the course of this study. The duplicate standard plates gave an average variation of 9 per cent on 87 samples of certified and pasteurized milk. These duplicate standard plate counts with the corresponding Frost little plate counts are graphically shown in the accompanying Chart 1.

In Table 4 comparative results by the two methods are given in detail for each grade of milk. These results have been selected from many hundreds of similar results in such way as to convey a fair idea of the usual agreement by the two methods and the degree of occasional disagreement.

It will be seen (Table 4) how rarely the comparative counts fail to coincide in rating the milk above or below standard. In not more than 2.0 per cent of all samples tested would the legal rating have been altered by the method of counting; the milks were either above or below standard by both methods. The exceptions noted were about evenly divided between those cases where only the standard plate gave a count in excess of grade and the cases where only the Frost little plate gave a count in excess of grade.

Summary.—In the hands of properly trained workers the Frost little plate count is probably as accurate and reliable as the standard plate count for routine laboratory work, especially in the case of pasteurized, certified and Grade A raw milks with the rare exception of milks containing large numbers of certain unusual types of bacteria. Where the counts exceed a million, as they often do for Grade B raw milk (the legal limit for which is 1,500,000 per c.c.), a greater discrepancy between the two methods sometimes appears. Even here the rating is seldom affected by the method used, but it is evident that the dilution technic for the Frost little plates must be further modified to take care of very highly contaminated milks and those containing unusual types of bacteria.

TABLE 3

CORRESPONDING AVERAGE COUNTS BY THE STANDARD PLATE METHOD AND THE FROST "LITTLE PLATE" METHOD

Grade of Milk	Legal Maximum Colony Count per c.c.	Number of Samples Included	Average Colony Count per c.c.		Little Plate Variation from Standard Plate
			Standard Plate	Little Plate	
Certified	10,000	22	4,484	4,330	−3.5%
		(24) *	(14,660)*	(16,468)*	(12.4%)*
A. Pasteutized	30,000	15	15,220	18,067	18.7%
B. Pasteurized	100,000	47	83,874	98,757	17.7%
A. Raw	200,000	66	73,403	84,921	15.7%
**B. Raw (country)	300,000	48	1,377,917	984,182	**−28.6%
B. Raw (city)	1,500,000	41	693,793	591,101	−14.8%

*These entries represent the same 22 samples of certified milk shown above plus 2 very high count samples (see Table 2). It can be seen how quickly the average variation by the two methods is altered when excessively high count samples are included.

**More than half of these samples were 48 hours old and the counts on many were too high for exact findings with the present way of making dilutions for the little plate test.

TABLE 4.

Grade of Milk	Legal Maximum per c.c.	Colonies per c. c.	
		Standard Plate	Frost Little Plate
Certified.....	10,000	5,650	8,100
		4,400	4,300
		3,500	2,600
		4,500	3,100
		5,000	5,900
		5,500	4,800
		1,800	3,100
		1,800	3,100
		*141,200	*147,300
		*112,000	*152,600
		1,600	2,000
		1,800	3,000
		900	300
		1,500	1,600
		*12,000	8,800
		*16,500	*18,900
		3,000	2,500
		1,100	4,000
		3,500	2,000
		3,500	1,300
		6,700	7,100
		10,000	5,600
		2,200	1,100
		2,200	1,000
A. Pasteurized.	30,000	*Plate overcrowded	*2,446,400
		4,500	18,900
		12,000	10,900
		9,000	13,900
		3,500	4,800
		2,000	3,300
		*80,000	*93,300
		20,000	19,400
		*38,000	*37,000
		5,200	9,000
		5,000	5,000
		5,000	5,000
		*61,700	*76,600
		13,500	28,900
		3,300	3,000
		7,500	5,000
		8,000	5,000
		2,300	4,000
		*400,000	*144,000
		5,300	6,000
		18,500	24,200
		30,000	*37,900
B. Pasteurized.	100,000	28,000	26,100
		43,000	85,800
		3,900	7,000

Grade of Milk	Legal Maximum per c.c.	Colonies per c.c.	
		Standard Plate	Frost Little Plate
B. Pasteurized (Continued)	100,000	*147,000	*133,000
		*182,000	*319,900
		*223,000	*273,000
		88,000	50,600
		41,000	33,300
		80,000	100,000
		44,000	37,200
		*170,000	*159,000
		*120,000	86,700
		24,000	24,000
		*640,000	*773,300
		61,500	70,000
		20,000	27,000
		6,600	8,000
		3,900	7,000
		59,000	44,900
		65,000	26,500
		96,000	19,500
		*260,000	*139,200
		*420,000	*599,900
		43,000	64,900
		*110,000	*129,900
A. Raw.....	200,000	36,000	35,800
		42,000	46,600
		58,000	53,300
		104,000	123,300
		120,000	138,300
		144,000	199,900
		80,500	94,900
		110,000	84,900
		100,000	121,600
		96,000	120,600
B. Raw..... Collected in Country	300,000	240,000	296,600
		92,000	92,000
		*1,800,000	*1,866,400
		*2,300,000	*2,899,700
		250,000	283,300
		*556,000	*783,300
		*556,000	*599,900
		*500,000	*366,600
B. Raw..... Collected in City	1,500,000	160,000	186,600
		630,000	491,600
		140,000	199,900
		42,500	49,900
		560,000	473,200
		*1,550,000	*1,606,500
		240,000	233,300
		*2,650,000	*1,733,100
		*2,200,000	*1,666,500
		155,000	166,600
		940,000	1,116,500

NOTE: Stars indicate counts in excess of legal maximum.

Conclusions.—Our present opinion is that both methods are to be depended upon and that, according to the local conditions, one or the other can be utilized.

Whether this test supplants the standard plate method or not, it is a matter of satisfaction to have a second test that can be run in parallel whenever check tests are made.

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BOTTLED BEVERAGES AND SODA FOUNTAIN SIRUPS

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THE DEVELOPMENT of the non-alcoholic beverage industry in the United States during the past ten or fifteen years has been quite phenomenal. The production of carbonated beverages had indeed assumed a place of distinct importance as an industry prior to the war, but in spite of a heavy, and what the industry considers a burdensome, war time tax the output has steadily increased. This increased demand for non-alcoholic beverages has, of course, been influenced by the legislative prohibition of alcoholic beverages, but the recent development of this industry, in my opinion, is by no means due entirely to this cause, but rather to a recognition by the public of the real merit of the present day non-alcoholic beverages. I have frequently remarked upon the tendency among men, especially young men, in various sections of the United States in cafes, hotel dining rooms, clubs and dining cars, to order non-alcoholic beverages, fruit juices, etc., in preference to alcoholic drinks, and as this tendency was noted in what may be designated as the pre-Volstead Act period, it could be attributed only to preference.

For our present consideration, non-alcoholic beverages may be broadly divided into three classes: namely, bottled sodas, fruit juices, drinks sold at soda fountains and cereal drinks. Non-alcoholic beverages are, in fact, classified under approximately these subdivisions for federal taxation purposes in Treasury Regulation 22, page 11, article 13.

I shall not at this time discuss the cereal beverages, the production of which has assumed very considerable importance, but confine my remarks to bottled

sodas and to soft drinks sold at soda fountains, discussing only incidentally bottled fruit juices.

From the regulatory standpoint of the Federal Food and Drugs Act we are more particularly interested in flavors and flavoring sirups used in bottled sodas and soft drinks sold at soda fountains than in the finished article which is ready for consumption, for the reason that the finished product is not shipped in interstate commerce to any large extent, compared to the total production, and only a small portion is therefore subject to the provisions of the Act.

As indicated above, the people of the United States consume enormous amounts of soft drinks; indeed, it may be said we as a nation have acquired the soda water habit. Millions of dollars in internal revenue taxes are collected annually by the Federal Government from the beverage industry. It has been estimated that the equivalent of over four billion pints of bottled sodas are consumed annually, in addition to the enormous consumption of soft drinks at the soda fountains in the thousands of drug and confectionery stores in the various towns and cities of the country. The increasing demand of the public for delectable thirst-quenching beverages has incited the flavor manufacturers to bring from the four corners of the earth all manner of spices and condiments. Some of these are prized articles of Biblical tradition, while others were then unknown, and perhaps would have remained unknown except for the apparently insatiable appetite of American beverage drinkers. There is probably no other class of food which is subject to such intelligent and scientific manipulation as the flavor industry, most of which is of distinct advantage to both the industry and to the public, but it is very easy for deleterious ingredients to be introduced into such products, without the consumer being aware of the actual or potential danger, and without any means of self-protection. It is important, therefore, if the people in this country are to have any conception of what they may be drinking in such large quantities, and a proper protection against possible harm, that the provisions of the Federal Food and Drugs Act should be applied to such products, and that activities under the Federal Act should be supplemented by adequate state and municipal control.

The ten or twelve thousand bottlers, the proprietors of the thousands of soda fountains, and the housewives who make up flavored beverages for home consumption, usually purchase their flavoring material in the form of concentrates and straight flavoring sirups, emulsions, pastes or alcoholic extracts. The principal difference between the so-called concentrates and straight flavoring sirups is that the concentrates are diluted by the bottler with simple sugar sirup in the ratio of perhaps one part concentrate to twenty parts simple sugar sirup, one fluid ounce of the final mixture being contained in each seven or eight fluid ounces of finished beverage, while the straight flavoring sirups are not diluted with simple sugar sirup, but are used directly in the manufacture of the finished bottled soda. As examples of the concentrates and straight flavoring sirups we have the cola type, the fruit or imitation fruit type, and a miscellaneous type, to the individuals of which distinctive names are generally applied.

The cola type of sirup is distinctive in its nature because of its somewhat peculiar flavor, and because one of the characteristic ingredients is caffeine. In addition to caffeine the cola syrups contain sugar, acid, color and a mixture of flavors of which the dominant ones are frequently lemon and orange, supplemented by many aromatic or pungent substances, some of which would never be suspected by the public, as for instance, Russian oil of tar, which is used

to give a peculiar "tang" to one of our popular American beverages.

The so-called true fruit flavored syrups rarely contain fruit or fruit juice as such, for the reason that the public demand in the past has been for a clear and limpid or cloudy finished article, and must not contain floating organic matter or sediment. In order to meet these preferences on the part of the public, the manufacturers have produced true fruit sirups flavored with either essence or fruit aroma obtained by distillation under reduced pressure of the pulp and juice of fruit. These essences, when added to simple sugar sirup and manufactured into finished beverages, produce articles that are limpid and clear with no sediment, and which are, in fact, true fruit flavored beverages, but do not contain fruit or fruit juice as such, and the labeling of the articles should be of such a character that the consumer can distinguish clearly and definitely between an article made with fruit essence and one that is made with the whole fruit juice. Soft drinks which contain fruit and fruit pulp may be purchased, of course, at the fountain. Such drinks are usually made from crushed fruit, and these beverages are greatly appreciated by the public. The crushed fruit used in these articles is usually obtained by packing whole fruit, such as strawberries, raspberries, etc., in alternate layers with equal weights of sugar. After the sugar has extracted the juice from the fruit, the resulting sirup is drawn off, and the pulp remaining is distributed to soda fountains for making fruit sodas.

A third type of flavoring syrup is that made with root extractives, essential oils obtained from plants, or synthetics which in chemical composition are similar to the characteristic flavoring ingredients of the essental oil or any combination of the above enumerated ingredients. Examples of this type of product are lemon and orange sirups made with lemon and orange extract or terpeneless lemon and terpeneless orange extract, respectively, and used to manufacture orange or lemon sodas, but not lemonade or orangeade; ginger ale made with ginger extract and rendered water soluble; cream sodas flavored essentially with vanillin, the characteristic ingredient, giving flavor to the vanilla bean; root beer and sarsaparilla made with methyl salicylate, the characteristic flavoring ingredient of oil of wintergreen; benzaldehyde, a synthetic chemical which strongly reminds one of cherries, and which can be obtained from the seeds of the bitter almond and from peach kernels.

A fourth type comprises the imitation fruit sirups, for the manufacture of imitation fruit sodas. The sirups of this class and the beverages made from them usually contain, in addition to synthetic fruit flavors, artificial color (usually a coal tar color, or combination of coal tar colors and sometimes a vegetable color), acid (which is usually citric or tartaric or a mixture of the two, or frequently also phosphoric acid), sugar, and water. The finished article, therefore, by its color and by the name of the fruit by which it is known or which appears on the label, looks like a fruit product, and when the bottle is opened it tastes and smells like a fruit product, but is in fact not a fruit product, as it contains no product of fruit except the acid. It is simply an imitation fruit article. Suggestion has much to do with the way the public regards beverages of this type. An instance came to our attention where the proprietor of a soda fountain built up a reputation for selling a particularly high class and desirable orange drink. The appreciative public lined up daily at the counter to obtain the refreshing drink. A food inspector who was curious investigated the manufacture of the article, and found that it consisted of sugar, fruit acid, water and a coal tar color. He observed, however, that when the beverage was served at the counter, a slice of orange was notched and placed on the edge of

the glass, so that in drinking the purchaser's nose came very near the orange peel. No addition to those ingredients given above was necessary to convince the buyer that he was getting a satisfying, real orange fruit drink.

The power of suggestion is taken advantage of, to a considerable extent, by the use of a gum for the artificial production of a "cloud" in bottled sodas. If gum is used in a proper way, an even, uniform turbidity can be produced in a bottled soda, which will simulate the appearance of fruit juice and pulp, with the added advantage that if the emulsion is properly made it will not settle out and produce an objectionable sediment in the bottle. Undoubtedly the use of gums to produce a cloudy drink has in some instances been due to the desire of the manufacturer to take advantage of the interest aroused by the popular discussions of vitamines, and especially of certain fruit juices as a source of one of them. While the simulation of the appearance of fruit pulp may not be the only commercial advantage in the use of gum, since by its use larger quantities of essential oil can be held in suspension in the sirup, yet the simulation of the appearance of fruit is so marked that the Bureau regards this artificial production of "cloud" by the use of gum as resulting in making the article an imitation fruit sirup, even if the flavor of the article is due to natural oils derived from plants, and is not due to the presence of a synthetic flavor.

A fifth type of concentrate or straight flavoring sirup is that of miscellaneous products which are not imitations of, nor offered for sale under the distinctive name of another article, but which are sold under their own names. This type would, of course, include the first type mentioned above, namely, the cola. Such products are known by distinctive names which have no inherent nor definitive meaning, such as possibly "sky-lark," "blue-bird," etc.

In addition to flavoring sirups, emulsions, pastes and alcoholic extracts are supplied to bottlers, proprietors of soda fountains and housewives for use in flavoring beverages. Flavoring emulsions are thick viscid mixtures, an important requirement in their manufacture being that they shall not "break" for a considerable period after they are made. The chief ingredients of such flavoring emulsions, besides the flavor itself, are gum, glycerine, and usually water and sugar. Some of these emulsions are manufactured and used in such a way by the manufacturer that they will produce the "cloud" in the bottled soda which has been referred to. The types of emulsions are much the same as the types of concentrates and straight flavoring sirups; in other words, the emulsions may be made from fruit juice, true fruit essences, root extractives, essential oils, synthetic chemicals, or from combinations of these ingredients.

Pastes are preparations of much the same nature as the emulsions, except that they are more viscid, and are of the same types and used for the same purposes as the emulsions and flavoring sirups. The alcoholic extracts for bottlers' use, or flavors as they are called, have one characteristic which differentiates them from the flavoring extracts for food purposes; that is, the flavoring material held in solution by the alcohol must produce a clear, limpid beverage when it is added to simple sugar sirup and diluted with water to make the finished article. Bottlers' flavors of this kind are made mostly from essential oils, from synthetic chemicals which are similar in composition to the chief flavoring ingredient of a particular essential oil, from fruit essences, from imitation flavors and from all possible combinations of the ingredients named. It is not necessary to enumerate the different types of flavors, as most of them are familiar. As stated above, an important requirement of these articles is that they be water soluble.

Having considered the types and the labeling of articles of this nature, it is of interest to consider the ingredients of these products from the standpoint of health. From this viewpoint I shall discuss the following ingredients: those derived from plants and fruits, such as spices, essential oils and fruit juice; artificial color, certified and uncertified; vegetable colors; the so-called fruit acids, phosphoric and other mineral acids; caffein; preservatives, permitted and forbidden; gums; synthetics; saponins; saccharin and sugar substitutes.

Some of the spices and essential oils which are common ingredients of the four classes of products which we are considering are as follows: oils of almond, anise, calamus, caraway, cardamon, cassia, celery, chamomile, cinnamon, cloves, coreander, cumin, fennel, ginger, lemon, lime, mace, neroli, nutmeg, orange, orris root, peppermint, allspice, rose, sassafras, spearmint, and sweet birch. I know of but very little work that has been done to determine the physiological action or effect of these materials when consumed in small quantities. Some of the spices are known to be antiseptic. While they are present in very minute quantities in the finished sodas, it is possible, however, that some of them may be detrimental to health.

Of the acids used in flavoring sirups, citric and tartaric usually referred to in the trade as the fruit acids, are the most important. It is possible that malic acid will be produced commercially in quantity in the near future and will compete with citric and tartaric acids for use in beverages. In certain types of beverages, such as the phosphates, phosphoric acid is, and should be, used. Other mineral acids, sulphuric acid, hydrochloric, and mixtures of these with phosphoric, are also employed to some extent. The Bureau does not encourage the use of mineral acids, such as sulphuric and hydrochloric in food.

Caffein is an important constituent of the cola type of beverages, just as it is an important constituent of coffee and of tea. A beverage containing caffein in sufficient amounts to cause injury to health would be considered adulterated, though the Bureau has made no announcement regarding the amount of caffein which would be considered harmful.

The Bureau has examined periodically beverages of this type which are shipped in interstate commerce, and so far as we are aware, caffein is not present in any of them in an amount exceeding 1 grain of caffein per fluid ounce of sirup, that is, 1 grain of caffein per seven fluid ounce bottle of finished beverage, since ordinarily the bottler uses 1 fluid ounce of sirup to each small bottle of soda. As much as 1 grain of caffein per fluid ounce of flavoring sirup is the exception, the average of 31 samples examined recently in the Bureau being about .2 grain. A cup of coffee contains from 1 to 2 grains of caffein according to the character of the beans used and method of preparation.

The use of preservatives in food, and especially in that class of food under consideration, is a most important question and worthy of more discussion than can possibly be given to it at this time. So long as the sirup manufacturer or bottler limits his raw materials to essential oils, imitation flavors and pure sugar, he has little need for a preservative, since, with reasonable cleanliness about the plant there is but little danger of sirups fermenting and souring. When, however, the bottler uses fruit or fruit juice in his sirups, or employs a substitute for pure cane or beet sugar, such as corn sugar, maltose, etc., he may encounter difficulties unless he takes more than ordinary, and sometimes expensive precautions, or uses a preservative. Those responsible for the policies of the Bureau have never encouraged the use of pre-

Preliminary investigations of the toxicity of caffein have been made, the results of which are set forth in Bureau of Chemistry Bulletins Nos. 148, 157 and 166.

servatives in food, although it is appreciated that under some conditions and with some products, especially those products the taste or flavor of which is impaired by the application of even as low a temperature as is used in pasteurization, it may be necessary to employ a preservative. Sulphur dioxide and benzoate of soda are permitted in food under certain conditions, which are set forth in Food Inspection Decisions 89 and 104. Sulphur dioxide may be used in ordinary quantities if its presence is declared on the label, and benzoate of soda may be used provided both the presence and the amount of this preservative are declared upon the label.

As has been indicated above, gums, such as gum arabic, gum tragacanth, Indian gum and other gums are coming into quite extended use in the manufacture of flavoring emulsions. The Bureau believes that where gums are used in food articles of this kind, although they are not considered to be specifically harmful, their presence should be declared upon the label, because of their indigestible character and because the public does not expect them to be present in soft drinks. Gums are present in emulsions in widely varying proportions, from 1 per cent or less to perhaps 15 per cent or more.

Under the subject of synthetics is included a long list of chemicals which are used singly or in combination in the production of artificial and imitation flavors. These synthetics may be divided into two classes: those which are chemically identical with the principal flavoring constituent of plants or parts of plants and their essential oils, and those which are either found in plants in very minute quantities or which have not been isolated from plants.

Some of the chemicals belonging to the former class are benzaldehyde (a coal tar product which is the principal flavoring constituent of oil of bitter almonds and oil of peach kernels); coumarin, the chief flavoring ingredient of the tonka-bean; vanillin, the chief flavoring principle of the vanilla bean; methyl salicylate, the principal flavoring ingredient of oil of wintergreen; and cinnamic aldehyde, which is present in cinnamon bark oil.

The following are some of the synthetic chemicals which either are not found in nature or do not exist naturally to a sufficient extent to warrant obtaining them from natural products: the ethyl, methyl, propyl, isopropyl, butyl, isobutyl, amyl, isoamyl, etc., esters of formic, acetic, propionic, butyric, valeric, isovaleric, salicylic anthranilic, etc., acids; also the higher alcohols, aldehydes, ketones, and certain phenols, etc. In fact, the manufacturer of flavors now draws upon those synthetic chemicals formerly used almost exclusively in perfumes, and does not limit himself to the so-called banana oil, etc., which his predecessors of a few years ago employed in the manufacture of imitation flavors. In many instances the flavor of essential oils is rounded out by complex synthetic chemicals, so that the product has a fruity odor which the essential oil itself may not possess. Very little work has been done with the view of determining whether or not these synthetic chemicals are harmful. The toxicity of the alcohols, methyl, ethyl, propyl, butyl and amyl has been investigated by Picaud, Baer, Efron, Dold, Macht and others, but generally speaking, the toxicity of imitation flavors has received but scant attention. Work along this line is being conducted by the Bureau. It must be borne in mind that, as in the case of preservatives, the actual amount of these synthetics which is contained in one or even several glasses of soda is exceedingly small. Some of these, however, are so potent that a drop or two in a gallon of water will impart a strong flavor to the liquid. Moreover, these imitation flavors are frequently employed to fortify or round out essences from fruit, essential oils and fruit juices, in which case

even smaller quantities of the synthetic flavors are in the finished product.

Saponin is the material used by bottlers to produce a foam or bead on the beverage. It is quite largely employed in some ginger ales, sarsaparillas and imitation fruit beverages. Some of the saponins are toxic, and saponin made from quillaja bark is considered to be especially undesirable for use in food. France prohibits the use of saponin in food, and the laws or regulations of some of our states restrict its use. The Bureau regards soft drinks as adulterated if damage or inferiority is concealed by the use of saponin, or if the particular saponin which is used is harmful or deleterious.

There is no objection to the use of harmless and nutritious sugar substitutes, such as glucose, maltose sugar, and similar products. In fact, the Bureau encouraged the use of these wholesome food articles during the sugar shortage. It is considered, however, that the people ordinarily expect their sweet food to contain sugar, and in order that the public may not be misled, it is required that when glucose and similar sugar substitutes are used in flavoring sirups, their presence must be declared upon the label if such articles are shipped within the jurisdiction of the Act.

It has been our experience that the regulatory control of food, including flavoring sirups, through the administration of the Federal Food and Drugs Act, has resulted in raising the standards of many products. Of course, raising the standard of an article sometimes means increasing the expense of manufacture, which must ultimately be borne by the consumer. Furthermore, as the quality and price of an article are raised, a greater opportunity is offered for "fly by night" concerns to manufacture and sell inferior and adulterated articles. However, when everything is considered, it is believed that the majority of manufacturers, themselves, would not consider for a moment the repeal of such an Act as the Federal Food and Drugs Act, which is of such protection to the public, and also to the manufacturers against unfair competition. The administration of the Act, however, must be assisted by interested and sympathetic public opinion and the appreciation of conscientious manufacturers, since otherwise it cannot accomplish the great good in protecting the public health which the men who created the law contemplated.

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The Medical Department of the United States Army in the World War, Vol. XV, Statistics; Part I, Army Anthropology. *Prepared under direction of Surgeon General M. W. Ireland by Major Charles B. Davenport and Major Albert G. Love. Washington. Government Printing Office,* 1921. 635 *p.*

This report supplements the exhaustive study of *Defects Found in Drafted Men,* by the same authors. It is based on three standard physical measurements, height, weight and chest circumference, taken on 1,000,000 recruits at the time of entering military training, with special reference to the distribution of physical defects in the Army, taken on 2,000,000 recruits, and on a series of 17 other anthropological measurements taken on 100,000 troops at demobilization. The whole study gives an insight into the sizes and proportions of the American male population, ages 21 to 30 years, with reference to various conditions of health, build, robustness, geographical distribution, occupational environment, density of population, race and color.

The comparisons with the Civil War measurements of Gould and Baxter are of interest, and the relations of certain measures to various diseases and defects will be illuminating to the sanitarian. For instance, tall men are especially prone to varicose veins, varicocele, pulmonary tuberculosis, cardiac disorders (both functional and organic), and goiter (both simple and exophthalmic). A very high proportion of men with low stature were found with defective teeth and refractive errors of the eye.

The work is that of trained anthropologists and statisticians, and while technical, is clearly and graphically presented.

THE WORK OF THE AMERICAN BAKERS ASSOCIATION IN THE DEVELOPMENT OF A SANITARY CODE FOR THE BAKING INDUSTRY

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Read before the Food and Drugs Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 18, 1921.

THE control of the food supply has long been a governmental function. For some thousands of years, laws and regulations have been in force, and inspectors at work protecting the consumer against fraud and injury to health.

Under the conditions created by rigid food laws, adulterations by the use of inferior substitutes, injurious colors and preservatives, and all the fraudulent practices which have harassed trade and worried the consumer, have become, for the most part, a thing of the past. Food control has entered a new phase—that of the rigid sanitary supervision of the manufacture and distribution of food products.

As we recall how recently this work has been developed, it is somewhat mortifying to remember that Moses laid down splendid sanitary laws for the Children of Israel 3400 years ago, and that long before the Christian era Athens and Rome had market and meat inspectors. Although we have been a long time establishing these very desirable sanitary regulations, it is gratifying to know that at the present time almost every state in the Union has a sanitary food law on its statute books; that every large city has a comprehensive sanitary code, and that the duties of the sanitary inspector as an agent of the health department are recognized by the consumer as an important and necessary function.

Within the last few years the food industries have come to appreciate the importance and value of sanitation. It is still not unusual to hear the remark, "If you saw it made you would never want to eat it again"; but modern food factories are being constructed and run on the theory, "If you see it made you will buy a case." These comments, with such opposite conclusions, represent well the changes which have taken place in food manufacture since it came to be understood that visible dirt is not the most dangerous, and that the invisible molds and bacteria are evidences of uncleanliness that if allowed to develop will turn good raw material into garbage and carry poison instead of food to the consumer.

No industry depends so fully upon the good will of the consumer as the baking industry. Women have not yet lost the art of baking. Bread can still be made in the home, but it is rapidly becoming a factory product because the housewife has learned that she can buy a better product than she can make, and buy it more cheaply than she can produce it in her own oven. So long as flour can be purchased in small quantities at the grocery store and readily converted into desirable food in the home, the baker will be forced to make quality products. As a matter of fact, the baking industry has reached the point where force and coercion are quite unnecessary arguments toward the production of desirable bread. Indeed within the last few years the baker has stepped out into the limelight and has come to the front as an idealistic food manufacturer. He has fortified his industry by providing it with laboratories devoted to research and service; he is establishing schools for the instruction of the men who will be the bakers of the future, and now he is proposing to operate his industry under sanitary and ethical codes which he has designed for

the purpose of making federal, state and municipal regulations unnecessary in so far as they are applied to this industry. This will go far toward eliminating from the ranks of the bakers men whose moral status unfits them for playing any part in the production and handling of our most important food.

At the last convention of the American Bakers Association a new constitution was unanimously adopted. The purposes of the Association were set out in part as follows:

Section 1. The development of the baking industry by increasing the use of commercially baked products.

(a) By securing wider application by bakers of improved methods and advanced baking practice.

(b) By education within the industry, to raise the standard of sanitation and trade practices, and to promote the use of wholesome ingredients and the production of products possessing the greatest possible food values.

(c) By encouraging proper, and discouraging improper legislation, and obtaining representation for the industry in all matters before federal and state bodies and consumers.

(d) By promoting intelligent understanding on the part of the public in relation to the operating methods and practices of the trade.

Applicants for membership must qualify under rigid membership standards and agree to conform to and maintain the standards. The membership standards require a suitably kept and located plant, adequate bakery equipment, intelligent operating methods, careful attention to the health of employees and compliance with a code of ethics which is far-reaching in its scope, and unique in the definiteness in which it sets out the relationship between the industry and the consumer.

One of the purposes of the Association is the certification of member bakeries, and the requirements prior to certification are explicit. They read as follows:

LOCATION AND CONSTRUCTION OF PLANT

1. Every bakery shall conform to the requirements of the sanitary codes or other statutory provisions and regulations of the state, county and city in which it is situated, with respect to its location and construction, bakery equipment, operating methods, and health of employees.

2. Every bakery shall, in any event, conform to the following specific requirements which this Association deems essential:

(a) The bakery shall be so located that drainage to sewers is adequate and that the basement and floors are not subject to recurring or foreseeable flooding.

(b) It shall not be located adjacent to conditions or industries which are inimical to the production of wholesome bread.

(c) It shall have convenient toilet rooms, separate and apart from the room or rooms where the materials and doughs are kept and prepared, or where baked products are stored or handled.

(d) Adequate and convenient wash rooms and toilet rooms shall be provided with soap, running water, and clean towels, maintained in a sanitary condition.

(e) Rooms shall also be provided for changing and hanging wearing apparel, separate and apart from the production, storage and sales rooms.

(f) The bakery shall be properly protected from flies.

(g) The bakery shall have suitable equipment for handling raw materials, doughs and finished products in a cleanly and sanitary manner.

(h) There shall be sufficient ventilation and light provided to insure the health of the employees and the wholesomeness of the bakery products, free from excessive heat, fumes dust and other conditions inimical to such health or wholesomeness.

OPERATING METHODS

(i) The floors, walls and ceilings of every bakery, the equipment used in the preparation or handling of bakery products, or their ingredients, and the vehicles, boxes, baskets and other receptacles in which bakery products are stored, handled or transported, shall be kept in a clean and sanitary condition, free from all contaminating matter.

(j) All bakery products and their ingredients shall be stored, handled, transported and kept in such a manner as to protect them from spoilage, contamination and unwholesomeness.

(k) All workmen and employees, while engaged in the manufacture of bakery products, shall be clothed with external garments of washable material which shall be used for that purpose only, and these garments shall be kept clean.

(l) The smoking, snuffing and chewing of tobacco shall be prohibited in the rooms of the bakery where the materials and doughs are kept and prepared, or where the baked products are stored or handled.

(m) No animals or fowls shall be kept in or permitted to enter the bakery rooms where the materials and doughs are kept and prepared or where the baked products are stored or handled.

HEALTH OF EMPLOYEES

(n) No person affected with any contagious, infectious or other disease, or physical ailment, which may render such employment detrimental to the public health, shall work in a bakery or handle any of the products therein or delivered therefrom. Freedom of bakery employees from any such diseases shall be evidenced by a certificate of medical examination, such examination to be made at least annually.

(o) No person who has had typhoid fever shall be employed in any bakery until adequate clinical examination has proven the applicant free from typhoid bacilli.

The Code of Ethics reads in part as follows:

1. I recognize my duty to the American home to be to make my product of highest food value at lowest cost.

2. I believe that the rendering of honest and efficient service on the part of my employees deserves fair consideration and that they should receive a fair return for their labor and be enabled to enjoy healthful surroundings, both physically and morally. I recognize a man's inherent right to work with freedom of conviction, without prejudice, and I will expect only an honest day's work and thoughtful consideration of our mutual interests and obligations.

* * * *

5. I will use no materials or ingredients other than those of known purity and wholesomeness in the manufacture of my products.

6. I will at all times adhere rigidly to the truth in all my advertising.

7. I will keep my plant and premises at all times as clean and sanitary as is humanly possible, and welcome public inspection at all times. I shall expect of my employees what the public has a right to expect of me, that we keep ourselves morally and physically clean.

This is an ambitious program. It cannot be carried through successfully without the coöperation not only of consumers, but of all health and food officials. The health officer should be especially concerned in the new movement in the interest of better baking practices and the production of bread of assured wholesomeness. It is not a usual thing for industries to police themselves, and yet this is just what the baker proposes to do. That it may know that every member is conforming to the rigid requirements of the sanitary and ethical code, the Association proposes to set up an inspection service and to maintain a corps of trained inspectors whose duty it will be to supervise the manufacturing methods of its members.

Obviously it is not practical to place an inspector in every bakery. Indeed, it should not be necessary, for we have already at work some thousands of sanitary officers who should welcome this new project of the baking industry and work with it for the purpose of seeing that its high ideals are fully complied with. Is there any reason why the Association, through the American Institute of Baking, its scientific branch, and through its committee on sanitation and ethics, should not set up a partnership of effort between its inspectors and the departments charged with enforcing sanitary laws? Can they not work to their mutual advantage and always to the more complete protection of the consumer?

If there be any flaw in the plan it is the fact that the Association does not include all the bakers of the country. There are more than 30,000 bakers, or rather it should be said there are more than 30,000 places where bread is made. The number of bakers—that is, trained, conscientious, well-equipped public servants—is far less than this. Fortunately the industry is rapidly eliminating basement shops, insanitary plants, the ill-kept, carelessly operated, unwholesome places which still too commonly fix the public idea of the conditions under which bakers' bread is made.

At least half of the entire bread production of the country, outside of the supply baked in the home, comes from the sanitary plants of Association members. May we not hope that by the adoption and enforcement of a sanitary code a far larger proportion of the bread supply will eventually come from certified plants?

REASONS FOR THE FAILURE OF OUR METHODS TO CONTROL DIPHTHERIA

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I HAVE no apologies to make for writing on a subject that has been so well covered by papers that have appeared recently. The very fact that so much has been written on the subject proves the necessity of paying much attention to it and that better methods of control are desirable. I hope to prove that quarantine is of no value in the control of diphtheria and only leads to a feeling of security that is false, for it is indeed a sad state of affairs that neither the morbidity nor mortality of diphtheria has declined to any great extent during the last ten years. Figures given by Weaver,[1] Carey,[2] Hull,[3] and others, prove this. What are the reasons for this continued high morbidity and mortality? The answer is the same for both morbidity and mortality, except, as I hope to prove, that missed cases are the greatest factor of all in continuing the high morbidity, while failure of early diagnosis is the greatest single factor in maintaining the high mortality. The responsibility falls alike on the public and physicians.

Failure to make an early diagnosis is due to several causes. First, parents of children, or adults who are sick often fail to call a physician until much valuable time has elapsed, or the physician himself loses valuable time before making the diagnosis. Far too often the physician waits until he can obtain a report from a laboratory before giving any antitoxin and, as has been repeatedly pointed out, the dosage is frequently too small. In unincorporated districts of Los Angeles County during 1920, the mortality rate from diphtheria was approximately 8.3 per 100,000 population. With the exception of three deaths which occurred 24, 36 and 48 hours, respectively, after onset, in every other death there was a delay of from 48 hours to one week after the onset before any antitoxin was administered, or else no antitoxin at all was used.

As Weaver says, that the time of onset is often stated in case histories to be much later than is actually the fact, due to desire of the parents to avoid the appearance of having neglected the child. It is obvious that failure to establish an early diagnosis is a factor in producing a high morbidity, as quarantine measures are not then instituted until a large number of contacts have occurred, and it is not always possible for the health department to learn the names of, or to investigate all the contacts. Starting with contact from a carrier or another missed case, a child or an adult has a slight sore throat. The symptoms may be so slight as not to keep him from school or from work, or he may stay home for a few days. Frequently a physician is not called or, if he is called, does not consider it diphtheria and does not take a culture. As a result, no control measures at all are taken and the child returns to school at a time when enormous numbers of bacilli in a state of high virulency are present and are being expelled from the nose and throat. I will cite a few instances among a number I have encountered which could doubtless be easily duplicated by other health officers. Of course, laws and court decisions vary considerably in different states, causing marked differences at times in the action that a health department may take. This will explain why our action may seem inadequate to some in certain instances.

A child living in a strictly rural district visited one of the beach resorts one Saturday. The following Tuesday she had a sore throat and stayed at home for two days, after which she returned to school. No physician saw the case. In a few days after her return to school several cases of diphtheria developed

among the school children in the room she attended. These cases were the first, and except for this outbreak, the only ones in that school during that year. There were about 200 children attending the school. A younger sister of the child having the first sore throat developed diphtheria about the time of the other cases and died. A culture from the throat of the first case was strongly positive for diphtheria bacilli, and remained so for several weeks. And six weeks after the initial attack the child was compelled to stay in bed for some time on account of cardiac weakness. Much to the disappointment of a certain class of people, she never had any antitoxin to blame for the cardiac involvement. It is interesting that in the fatal case in this family the mother refused the use of antitoxin on religious grounds, but requested that it be used on two other children who later developed symptoms. A number of cases developed in the school in a few days following the first cases. The trustees became alarmed and closed the school. I persuaded them to reopen, and cultured all the children and teachers. A few carriers found were excluded until they cleared up, and no further cases occurred that year.

In contrast to this is the following: A girl living in another rural district visited a large city. In a few days she developed a sore throat and fever. A physician was called and, considering it only a case of tonsilitis, did not take a culture and made no more visits, as the mildness of the case did not seem to warrant it. I know that the physician is above the average in the care he exercises in cases of a possible communicable nature. I learned of the case, and not knowing a physician had been called the day before, I visited it. There was nothing in the appearance of the throat to suggest diphtheria but, as a matter of routine, I took a culture which was strongly positive and remained so for three weeks. The child showed considerable cardiac weakness, which kept her in bed for most of the period of quarantine and called for much caution for several weeks more. No antitoxin had been given in this case either. No secondary cases occurred, as fortunately there were no contacts outside of the family.

Another case is of interest: A 12-year-old boy living in a fair-sized city, but outside of the corporate limits, died. The family belonged to a religious cult opposed to medicine. A physician was not called until it seemed certain that death would ensue, and he diagnosed the case as one of unmistakable diphtheria. The family said: "We cannot imagine where he got it, as he had been nowhere except school and a few other places." I said to them: "Suppose your boy had had just enough resistance to have had a severe attack and yet not have died. After recovery, but while yet in a stage when large numbers of virulent bacilli were present in the throat to be coughed out, or be deposited on drinking fountains or other places, the boy would have returned to school or in other ways have mingled with other children. The probabilities are that some of these children are susceptible to diphtheria and would have developed the disease. And possibly there would have been a death in some other home. That is just what some other child has done, either consciously or unconsciously, and the death was in your home in this instance." This case well illustrates how great is the need of education of the people to coöperate with officials in reducing morbidity of contagious diseases.

These are just a few of many cases that have come to the notice of this Department, and illustrate so well how the morbidity continues. For if we discover certain cases by accident, how many are there that the best functioning health department must miss? Even if a child is examined before returning to school after an illness, what can be done in case of a child under school age, or an adult who

has a non-fatal, unrecognized case of diphtheria? This child or adult will mingle with others after clinical recovery and while still carrying bacilli of virulent strains; and children in the same family as these unrecognized cases are often carriers when the bacilli are numerous and of an actively virulent strain, and may attend school and visit other places.

Much attention is paid to schools, and yet many other places that are outside of any direct control by health departments are of almost as much importance as potential sources of contagion. I refer to common carriers, soda fountains, movies, dance-halls, Sunday schools, day nurseries, and the crowds that are so often present in department stores. Considering all the facts, it is surprising that the morbidity is not much greater than it is.

There are just two reasons to explain why it is not greater: First, transmission requires a close contact, such as actually coughing in the face while someone is inhaling, drinking out of a cup soon after a carrier has used it, or using some other equally good method to transmit the infection. Second, that the percentage of people of any age group who are susceptible, is much less than tests by the Schick test would indicate. The number of secondary cases in families and institutions verifies this statement. There is usually more or less contact in either class of places before a diagnosis is made and precautions are taken. And in private homes, unless the case is removed to a hospital, it is exceptional that isolation of the case is carried out until negative cultures are obtained. And yet, what per cent of the other children contract clinical diphtheria? It is very much less than the percentage of susceptibles as determined by the Schick test would lead us to believe. It is difficult to furnish exact figures, as isolation of some cases has been complete, and in others the contacts have each received a prophylactic dose of antitoxin. It is true that occasionally one will carry bacilli for some time and then develop a clinical case, but such cases are uncommon. In this connection one must bear in mind that unless the symptoms are typical of diphtheria they may be due to other causes.

A point to which others have drawn attention[5] is the occasional absence of a membrane, and other typical symptoms mentioned in text-books. Occasionally one sees a case of sore throat and fever from which a positive culture of diphtheria bacilli is obtained, and yet no benefit is derived from the use of antitoxin. These cases may well be some of those who are carriers that are always found if cultures are taken, and become sick with tonsilitis or other throat trouble. I cannot agree with Craig's[6] statement that all these cases that give a history of previous sore throat and give positive cultures of diphtheria bacilli, have been cases of diphtheria, for it is illogical to assume that even if one is a carrier of diphtheria bacilli he may not have had a sore throat due to streptococci or other infection, just as other people who are not carriers do, and, moreover, it cannot always be proved that he did not become a carrier because of the greater susceptibility of the tissues to harbor diphtheria bacilli following some other infection.

During an acute attack it might be possible to make an accurate diagnosis between a clinical case of diphtheria and a case of sore throat from other causes in which diphtheria bacilli are found, but are not the cause of the pathology by the degree and character of a leucocytosis. But at a later date it might be impossible to determine the exact status of the case. This statement is corroborated by Park.[7] Of course, in these cases the therapeutic indications are clear even if a strictly accurate estimate of the true diagnosis is impossible. In a true epidemic where practically all are exposed, nowhere near the percentage of persons develop diphtheria that the Schick test would lead us

to believe are susceptible. I believe that the true figure for the number that are susceptible in any one year is the number that develop clinical cases, as under present conditions practically all are exposed to the infection some time or another. Of course this does not apply to the small percentage at home who never leave their own premises, or to very isolated rural districts, or to those in institutions where many precautions can be taken. It seems from practical experience, as determined from statistics given by various writers and from analysis of conditions existing at present, and which probably will exist until a far future date, that the morbidity rate of diphtheria will remain practically the same.

I wish to be clearly understood in making this assertion, that I recognize fully the value of active immunization and am heartily in favor of it. The brilliant work that has been done by Zingher[8] and others deserves much praise. But it will necessarily be some time before an appreciable percentage of people take advantage of it. We can hardly expect that more will voluntarily wish immunization than wish smallpox vaccination, and if California is an index of the whole country, the percentage is less than 20.

The majority of people are prone to be content with the false security of quarantining cases of diphtheria. All that can be done is to offer the protection to those who wish it and let others incur the possibility of contracting diphtheria if they so choose. For is it not more logical to let the people themselves choose whether they wish certain protection, than to force it on them? This plan may not lessen the morbidity statistics of certain health departments, but it allows the public to carry some of the responsibility in limiting communicable diseases. At the same time, it is clearly our duty to carry on continual educational propaganda and to demonstrate the value of protective measures. Let these measures be so valuable that they will stand any investigation and be commended by the great American jury, the public. The people will always chafe under a measure which is forced on them by law, while if it be adopted of their own free will, it is bound to be popular. If it were possible to locate all or nearly all the foci of infection, then it would be possible to eradicate the disease or at least reduce the morbidity rate materially.

From my observation, it seems almost useless to attempt to limit the number of cases. What we gain one year is liable to be more than lost another one. Suppose we were to have a group of people living on an island or some other place where complete isolation of them could be maintained, and suppose we could eradicate diphtheria entirely for a whole generation, and that then in some way the disease should be reintroduced and many be exposed before control measures could be put in force. What would be the result? My prediction is that it would find such a large percentage of extremely susceptible people that the morbidity and mortality rate would be enormous. This, of course, is analogous to cases where a new disease has been introduced among some uncivilized race or tribe. I can offer similar examples in a very minor way. In a few of our districts which are either on the edge of a large city or situated where there is much traffic and intermingling of people, there are nearly always a few houses decorated by a green placard reading "Diphtheria." But in proportion to the number of people the number of cases is not great. In other words, these districts do not have any more cases of diphtheria, figured according to 100,000 population for a 10-year period, than do other districts. On the other hand, in a district that is fairly well isolated there may not be a case of diphtheria for months or even years. But, should a case appear and not be recognized early, before a number of contacts have occurred, the number of cases is large. The number per hundred thousand for a 10-year period is practically the same as in the districts of denser

population, but the number during a short period of time is all out of proportion. Or, to state it in another way, in some districts the wave is low, but continuous, and in other districts the incidence runs in high waves interspersed for varying lengths of time by no cases.

But the great difficulty in reducing the morbidity rate does not excuse us in the least for not reducing the mortality rate. It is an appalling indictment of our intelligence and civilization that more progress has not been made. And how are we to remedy the conditions? *By education.* Education of physicians, the public in general, and all agencies which might be in a position to further the work. The best place to start with this education or program is in the medical school. While there has been some improvement in this respect, in many schools it is regrettable that more progress has not been made. As I have pointed out before,[9] too little importance is attached to communicable diseases in the medical school, and too few of the graduates, even those serving an internship, unless it be in a country or municipal hospital, have any demonstrations worthy of the name on this class of diseases.

What a shame it is when we consider the importance of these diseases from every standpoint — the time lost from school, the deaths, and the complications resulting from them, not to say anything about the effect it has on the physician's standing. So many complications resulting from these diseases could have been avoided had better diagnoses been made which would have enabled precautions to have been taken. Any aurist or urologist or orthopedic surgeon will corroborate this statement. So many cases are atypical that text-books cannot take the place of actual demonstrations. At the same time that we are teaching students to make a diagnosis, the importance of a correct early diagnosis must also be brought home to many of the older physicians. Equally important, also, it is to educate the public to a realization of the serious results ensuing from a deceptive and treacherous disease like diphtheria.

In diphtheria, as Craig[6] has mentioned, the membrane, on which so much stress is laid, is often absent. Hogan[5] has pointed out difficulties in diagnosing the laryngeal type. And then, too, we have nasal types that may be very obscure. Occasionally a culture may be misleading, as the actual location of the region may not be reached by the swab. And, of course, the possibility of a mistake in the laboratory technic must not be overlooked.

To summarize the points to be remembered, in order to diagnose early as many cases as possible and to reduce the mortality rate, we must: First, culture all cases that might be diphtheria and reculture if a negative result is obtained. But of all things, do not let a negative culture prevent antitoxin from being given early if clinical symptoms lead one to believe that the case is one of diphtheria. Second, remember the absence of a membrane in certain cases. Third, remember the possibilities of a nasal or a laryngeal type. Fourth, ask for the coöperation of the health department or of others especially trained in establishing a diagnosis in all doubtful cases. Many cases require rare judgment that is only obtained through large experience. And in asking for consultation, ask for it at a time early enough that treatment may be of value.

While every one who has had an extensive experience agrees about the value of antitoxin as a curative agent and is in favor of active immunization, I wish to enter a protest against the routine use of antitoxin as a prophylactic. Of course, one has to use his judgment in individual cases. Very few of the deaths are from secondary cases in the same family, as all are on their guard and early action is taken when a secondary case develops.

As only a certain percentage of any age group is susceptible, antitoxin is given to the majority needlessly; that is, unless a Schick test is made, and by the time that can be carried out it would be too late to use antitoxin as a prophylactic. Unless it is carefully explained to those immunized that the protection is of short duration, it may cause them to have a feeling of false security at a future date, and so throw them off their guard as to overlook a diagnosis with a possible fatality as the result. While the danger of anaphylaxis is so small as to be negligible, this does not hold true if it is necessary at a later date to use antitetanic or some other serum when the people may forget to tell the physician or he may not ask them of the use of the diphtheria antitoxin previously. The use of a prophylactic dose does not necessarily prevent them from becoming carriers, and it is always a disappointment to the people and disagreeable to the quarantine officers under those conditions to have to extend the quarantine period after the clinical case has cleared up or been removed to a hospital. As carried out at present, our quarantine laws and rules on diphtheria often carry a severe penalty to those who report mild cases to the health department. It occasionally happens that a whole family is held in quarantine for a long period while waiting for negative cultures. This causes many to do all they can to avoid reporting a case, and thus automatically tends to defeat the very purpose quarantine is established for. If our morbidity statistics proved that quarantine produces the results hoped for, I would not enter one protest against it. But the statistics of cities with efficient health departments prove how utterly quarantine has failed to reduce the morbidity and mortality rate. In fact, it creates a feeling of false security in a neighborhood and is nothing more in the case of diphtheria than a method of control inherited from the earliest times when efforts were first made to control the spread of contagious diseases. This criticism necessarily does not apply to certain infections, such as bubonic plague, which may be stopped before they become universal. So let us discard methods which have been tried and found wanting, and exert more energy toward other methods which promise better results. I would suggest, however, a quarantine for a limited time in diphtheria cases, to enable the health department to investigate the cases and permit of isolation of patients while the infection is the most active. This would also permit health departments to prevent the entrance of the disease into institutions or districts where it is now possible to keep diphtheria free. Preach the gospel of sanitary measures, such as avoiding the common drinking cup. Demonstrate and facilitate the active immunization to lessen morbidity. But above all, exert every energy to promote education that early diagnosis may be made and proper treatment instituted early to lower the mortality rate. When this lesson can be brought home to every person, then our mortality rate will reach the point that is the goal of every one of us who has had occasion to observe deaths from a disease that we know so well can be treated with good results if only valuable time has not been lost.

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REPORT OF THE COMMITTEE ON STANDARD PREPARATION OF DIPHTHERIA ANTITOXIN

Approved by the Laboratory Section, American Public Health Association, 1921

YOUR Committee on Standard Methods for Preparation of Diphtheria Antitoxin has attempted to complete a report, but regrets to state that but little progress seems to have been made during the four years that have elapsed since the last report was presented. Several workers besides the members of the Committee were approached in the expectation of obtaining valuable information. Communications from Dr. E. J. Banzhaf, Dr. E. M. Houghton, Dr. J. W. M. Bunker and Mr. S. D. Beard reached us and some important points suggested by these workers have been incorporated in this report.

The paucity of new work in antitoxin preparation is due to a combination of several factors. War orders, of course, have occupied much time to the detriment of research, but perhaps the most important factor was the ill-success that has quite generally been experienced in the preparation of diphtheria toxin.

Since Witte peptone has become a scarce article on the American market many efforts have been made to find a suitable substitute. Progress unquestionably has been made in this direction, but as far as the Committee has been able to learn, no peptone has been placed on the market which gives generally satisfactory results. Some peptones that are readily available give good results for a period, and then suddenly without apparent cause—excepting the purchase of a new lot—toxin formation fails. But even when peptone of the same lot number is used the results are not uniformly favorable, a fact which seems to show that either the peptone is of uncertain composition, or, what seems more probable, that there are other factors involved which are as yet insufficiently understood.

Some manufacturers prefer to make their own peptone from pig, veal or calf stomachs or similar material. The exact method varies in different laboratories. Martin's peptone is made from pig stomachs by digestion with hydrochloric acid at 55° C. The period of digestion is 18 to 24 hours, and experience has shown that digestion should not be carried too far. This observation shows that for toxin production the meat or stomachs should not be broken down to a stage where peptones are predominant, but to a point where a generous quantity of albumoses is present. The ferment action is brought to a close by heating in a water bath and neutralizing the hydrochloric acid with sodium hydrate. The liquid after filtration represents a solution of peptone. This liquid peptone is quantitatively economical, since it is mixed in approximately equal quantity with meat broth prepared in the usual fashion. Usable toxins are frequently obtained by this method.

Dr. Hitchens gives the following method for preparation of peptone:

"The peptone which we use in the laboratories of Eli Lilly and Company for preparation of diphtheria toxin is the result of digestion with calves' stomachs. The temperature conditions and the length of time allowed for digestion will influence the quality of the peptone which is secured. While we are able to secure peptone which is very favorable for the growth of the usual organisms, or in making up the usual line of laboratory media by digestion for a long period of time, we have found that it is advisable to digest for a rather short period of time in making the peptone for diphtheria toxin preparation. Inasmuch

as we are making peptone for our own use only, we do not carry the process of manufacture to drying the material. We compute the percentage of peptone present in the digested fluid and use this hydrolized liquor in proper proportion to give a broth of about 1.5 per cent peptone."

Dr. Houghton states in his communication that uniformly good results have been obtained in the laboratory of Parke, Davis and Company by using their own peptone. By the use of starter flasks, adjusting the reaction to a deep pink with phenolphthalein and by incubation for at least twelve days, potent toxins can invariably be obtained. A culture of good toxicogenic power must be used.

The kind of meat used for preparing the broth is considered important by some workers. These state that young veal, carefully freed from fat and tendon is preferable to beef. Other workers believe that beef is as efficient as veal.

An important point has been brought out by research carried on during the past four years, namely, the method of adjusting the reaction of the broth. It seems that the most reliable method is the adjusting of the hydrogen ion concentration to 7.4 to 7.6. Outside of these limits potent toxins are rarely obtained. American peptones, as a rule, are of less uniform composition than Witte peptone and a delicate adjustment of the reaction is therefore imperative. The colorimetric method is accurate enough for adjusting the hydrogen ion concentration and phenolsulphonephthalein covers the range in a satisfactory manner.

However, there is a difference of opinion on the subject. Dr. Houghton states that when Parke, Davis and Company's peptone is used the reaction should be adjusted by the use of sodium hydrate until a deep pink is produced with phenolphthalein. This reaction should be checked by using standardized boric-acid-potassium chloride-sodium hydroxide, Ph=8.2 and Ph=8.4 solutions, and 0.5 cc. of phenolsulphonephthalein solution as indicator. The reaction should be equivalent to a Ph=8.2 value.

Another important point is the period of incubation of the toxin. When Witte peptone was used, incubation of seven days at 35 to 36° C. usually gave satisfactory results. Growth and toxin formation of the diphtheria bacillus on broth made with American peptone is more variable than when Witte peptone is used, and the incubation period should be limited accordingly. The period may vary from three to nine days. The most suitable time to remove the toxin from the incubator can be determined by the hydrogen ion concentration. This can be done after some experience by making one or two tests from the same flask. With proper precautions the requisite amount can be removed from the flask without incurring the risk of destroying the film or admitting foreign organisms. During the initial period of incubation acid is formed and after a few days the reaction reverses to alkaline. When the original reaction of the broth has been slightly exceeded in alkalinity, the toxin formation usually has reached the highest point. According to Dr. Bunker's work the most favorable period for harvesting is when the hydrogen ion concentration has reached Ph 7.8 to 8.0. If incubation goes beyond this period the potency falls rapidly, and if the toxin is removed before this reaction has been reached the highest point of toxicity has not been attained.

Dr. Houghton disagrees with Dr. Bunker and states that the toxin may be gathered for days after the maximum has been reached without material loss in potency. In the laboratory of Parke, Davis and Company toxin is incubated for at least twelve days.

On the whole it appears to the Committee that our knowledge of the conditions affecting toxin production by the

diphtheria bacillus has advanced sufficiently to demonstrate that efficient toxins can be prepared by the use of American made peptones, and that we need not depend upon foreign importations.

The use of 0.1—0.2 per cent dextrose in diphtheria broth is unnecessary when some kinds of peptone are used, according to certain reports.

In the refining of the product it seems that very little progress has been made. The aim is, of course, the preparation of a uniform product, of high multiple of concentration without undue increase of solids and viscosity, and the elimination of proteins known not to contain antitoxin. This last property is of importance chiefly for the reduction of the so-called serum disease. The Banzhaf method, as far as the Committee has been able to ascertain, is still the most commonly practiced, although some manufacturers hint at slight modifications of the process. The use of phenol or a phenol compound in place of chloroform as a preservative for the plasma is advocated by some. According to a communication from Dr. Banzhaf the use of phenol in quantities of 2.5 to 3 c.c. per liter prevents clotting of the plasma, makes for a higher concentration by increased elimination of useless proteins, and renders the end product clear and stable. As a consequence filtration through a Berkefeld filter is materially facilitated. Miss Homer in the Lister Institute in England has published a series of papers on antitoxin concentration, and advocates the use of 2 per cent of sodium chloride in addition to the usual amount of ammonium sulphate. She also recommends the adjustment of the reaction of the plasma to about Ph 7.8 as an alternative. The same author recommends the use of cresylic acid in amounts of 0.25 to 0.3 per cent for obtaining high concentration and a clear, easily filtrable end product. She advocates further the extraction of the 30 per cent precipitate with sodium chloride according to the original Gibson method, and claims that when this is done the loss of antitoxin during manipulation can be reduced to a negligible quantity of about 2.5 per cent. The Committee has not been able to ascertain whether Miss Homer's suggestions have been extensively practiced by American manufacturers.

The following statements were received from Dr. E. J. Banzhaf: To prevent clotting 0.25 to 0.5 per cent of phenol in the plasma gives the best results. In order to obtain a clear end product the plasma should be clear. This can be accomplished by filtering the plasma through two or three layers of cheesecloth to remove the slimy and insoluble portions which are usually present in plasma after standing. The heating of the plasma with the required amount of ammonium sulphate solution should be rapid up to 57° C., and then gradual heating to 60° C. This should take one and one-half to one and three-quarters hours, then about fifteen minutes from 69 to 62° C. If plasma is highly colored the end product will reflect it. This can be partly overcome by redissolving the pseudo-globulin precipitate containing the antitoxin and re-precipitating. Starving the horses before bleeding, i. e., not feeding them the day of bleeding, and allowing the dialyzed product to age in the ice box at least six months before pulping and Berkefelding improves the clarity of the product.

A difficulty—also owing to the war—has been experienced in obtaining a suitable quality of trikresol which is now generally used as a preservative for the finished product. The restraining and germicidal properties of various trikresols, purified kresols, orthokresol, etc., are not the same and the influence on the physical appearance of the end product is variable according to the preservative used. Some kresols slowly produce a precipitate and the refined product has to be kept for days or weeks before filtration. According to Krumwiede and Banzhaf precipitation is largely pre-

vented if kresol is added after solution in an equal volume of ether. If filtered too early a precipitate may form making a second filtration necessary. Some sera possess a fair degree of clarity after dialysis, but become cloudy after the addition of trikresol. This cloudiness is sometimes so intense as to render the product decidedly unattractive. Reconcentration as recommended by Heineman is a successful remedy for this condition, but, of course, entails additional labor and expense.

Turbid sera are not infrequently encountered before the preservative has been added. Some workers believe that the plasma of cetain horses always yields a turbid product, while others believe that the plasma of the same horse sometimes yields a clear and sometimes a turbid product.

As a result of the observations contained in this report the Committee submits the following subjects for exhaustive investigation, and makes the plea that results be reported to the Committee:

1. Toxin production.
   a. Methods of preparing the broth
   b. The kind of meat most suitable
   c. The kind of peptone
   d. The period of incubation
2. The concentration of the plasma
   a. Is oxalated or citrated plasma preferable?
   b. The kind of preservative for the plasma
   c. The conditions governing the production of a readily filtrable solution after heating the plasma-ammonium sulphate mixture
   d. The conditions governing the physical properties of the end product, namely color, clarity and viscosity
   e. The kind of kresol most suitable for preservation of the end product
   f. The minimum period that should elapse between the termination of dialysis and the filtration through a Berkefeld filter

The Committee finally wishes to state that this report should be considered a report of progress, but that the time for adoption of uniform methods has not yet arrived.

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CORRECTION

In the May issue of the JOURNAL, page 405, the title of Dr. Charles Edward Ziegler, author of the paper on "How Can We Best Solve the Midwifery Problem?" is erroneously given as "Professor of Obstetrics, University of Pittsburgh."

Dr. Ziegler resigned this chair in 1918, as a result of events which are narrated in his paper, and has since had no connection with the School of Medicine. On account of these special circumstances, we feel that we owe it to Dr. Ziegler to make clear that he is in no wise responsible for the publication of this title.

A Forward Step.—A long forward step has been taken in New York State by the enactment of a law providing that health officers shall be appointed for four-year terms and shall not be removed except on charges. The same rule might well be made country-wide in application and extended to other municipal, county and state officials where adequate civil service regulations do not already govern appointments and removals.—*Engineering News-Record*, April 20.

THE BACTERIAL ACTION OF DRY CLEANING

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AN INVESTIGATION of the bacterial action of the process of "dry cleaning" garments, with solvents such as gasoline and benzol, has been made at the Mellon Institute of Industrial Research of the University of Pittsburgh, as a part of the regular program outlined for the year's work of the Multiple Industrial Fellowship of the International Technical Society of Cleaners and Dyers, which is an organization of eleven of the largest and most progressive members of the National Association of Dyers and Cleaners.

The tests were conducted in coöperation with the Department of Biology of the College of the University of Pittsburgh. The cultures of bacteria were prepared and the laboratory work in connection with the investigation was done in the University of Pittsburgh laboratories, where special equipment is available. John C. Fettermann, Ph. M., Dean of the College and Professor of Biology, directed, and W. H. Emig, Ph.D., Assistant Professor of Biology, conducted the actual bacteriological work relating to the tests. Professor Fettermann is a specialist in inquiries of this nature, having made a number of similar investigations in connection with foods, the handling of milk, etc. The work at the plants was done under the immediate supervision of the author, who is the senior incumbent of the Industrial Fellowship, with the direct coöperation of the owners of the local plants.

Since this investigation was made in plants using methods and equipment recognized by the National Association of Dyers and Cleaners, a distinction must be drawn between competent dry-cleaners and those who, though posing as dry-cleaners, do not use recognized methods and have not the facilities to do proper cleaning. The National Association of Dyers and Cleaners is an organization of cleaners who must measure up to the recognized standards of methods and equipment. There are 1,200 members of this Association, each representing a cleaning plant. The capital invested in these plants is about $36,000,000; the annual volume of business is about $48,000,000; the number of employees is approximately 32,000, and the average number of accounts run is in the neighborhood of 4,800,000.

Aside from a few plants using recognized methods, which are not represented in the National Association of Dyers and Cleaners, there are thousands of places represented to the public as cleaners or cleaning establishments which have no right to be classified as cleaners at all. Many of them do their work in sheds or cellars or in back rooms, in open washers or on scouring tables, and send the part of their work which can not be made presentable by these superficial methods to some better equipped cleaning plant. It is estimated that there are 200,000 such places in the United States and Canada. The following is an extract from the 1920 report of the State Fire Commissioner of the State of Nebraska, made by Fire Marshal C. E. Hartford (extract from page 18), and may be considered as representative of the condition throughout United States and Canada:

> In some smaller cleaning plants our inspectors find a small galvanized bucket which holds about 2½ gallons of gasoline. The owner takes the skirt or jacket, dips it into the bucket so as to thoroughly saturate the garment. He then takes the garment up, wrings it out with his hands, places it on a hanger and hangs it up in the back room.

When he finishes, he pours the dirty gasoline back into the can, puts the cork back, sets it under the stairway and goes back to his pressing machine.

Now, anyone who understands proper cleaning of garments will know that the garment was not cleaned. Yet the surface soil may have been removed or spread evenly over the surface, and the general appearance might be fair until it is worn for a little while. The same thing is done with suits.

This condition exists in quite a number of localities. This is often found by our inspectors. The main purpose of my theme, however, is not only to show the danger from the illegitimate use of gasoline, but also the extent of frauds being practiced on the public.

It is obvious that sanitary efficiency under these conditions cannot be very high.

The following is Professor Fettermann's report, which is based on results of the investigation conducted in the plants of two Pittsburgh, Pa., members of the International Technical Society of Cleaners and Dyers:

I submit herewith my report on the results of the investigation conducted for the purpose of determining the bacterial efficiency of the method of dry-cleaning as conducted by two companies located in the city of Pittsburgh.

Plant No. 1.—The method employed at this plant involves the use of benzol and unsaponified fats. The routine is indicated herewith:

First run in benzol and soap.....15 min.
Rinse in distilled benzol..... 5 min.
Run in tumbler, temperature 60°.....15 min.
Put over pressing machine; steam pressure, 90 pounds.

Pieces of cloth, one inch square, were inoculated from a culture of the common hay bacillus, and then allowed to dry at room temperature. A number of these unit pieces of cloth were attached to a garment at the beginning of the cleaning process and one was removed after the clothing had been centrifuged, another after treatment in the tumbler, and a third after the garment had been through the pressing operation. The determination of the number of bacteria present was then made and comparison made with the bacteria found present in the untreated sample. In the second series of the experiments at Plant No. 1, live steam was introduced into the tumbler for a period of five minutes. In connection with the second experiment conducted at each of the plants, the pieces of cloth were inoculated from a culture made up largely of lactic bacteria.

First Series

	Bacterial counts
Control	580,000
Centrifuge	180,000
Tumbler	80,000
Pressing operation.....	40,000

Efficiency, 93.10%

Second Series

	Bacterial counts
Control	1,200,000
Centrifuge	370,000
Tumbler	180,000
Tumbler and live steam (5 min.)	50,000
Pressing operation	500

Efficiency, 99.96%.

Plant No. 2.—A similar investigation was conducted at a second plant, where gasoline is employed in the cleaning process. The routine observed at this plant is as follows:

First run in gasoline and soap .....30 min.
Rinse in distilled gasoline.....20 min.
Tumbler .....30 min.
Put through pressing operation.

First Series

	Bacterial counts
Control	500,000
Centrifuge	200,000
Tumbler	100,000
Pressing operation	50,000

Efficiency, 90%

Second Series

	Bacterial counts
Control	2,700,000
Centrifuge	150,000
Tumbler	165,000
Pressing operation	200

Efficiency, 99.99%

These experiments reveal the fact that the efficiency of the method of cleaning employed at Plant No. 2, as well as at Plant No. 1, is unusually high. The destruction of the organisms which are utilized in these experiments, notably in the case of the hay bacillus, would indicate that pathogenic organisms, such as the tubercle bacillus, the bacillus of diphtheria, as well as typhoid fever, would undoubtedly be destroyed. Herein would lie one

of the strongest points in favor of the cleaning process employed.

Discussion of Prof. Fettermann's Report

The hay bacillus (B. subtilis), used to inoculate the test pieces of cloth for the first series of tests, is one of the most hardy bacteria. It is quite conservative to say that conditions that will kill this bacteria will also kill any of the disease-causing bacteria (pathogens). The hay bacillus is widely distributed in earth, air and water, and was formerly regarded as one of the most typical of non-pathogenic organisms. Lately it has been proved capable of producing spontaneous infection in man.

The lactic bacteria employed for the second series of tests were obtained from milk and may be considered a representative type of bacteria found on garments, due to dropping food, etc. These organisms are less hardy than the hay bacillus—i. e., they are more easily destroyed.

The tests described in this report are unique in that practically no work of this nature has been published before. A search of the bacteriological literature reveals no published results of tests made to determine the germicidal efficiency of the "dry-cleaning" process. A number of tests of the germicidal efficiency of laundering have been carried out and published in public-health periodicals. Notable among these are the results reported in the AMERICAN JOURNAL OF PUBLIC HEALTH, Vol. VIII., No. 7 (July, 1918), pages 494 to 498, "On the Bactericidal Efficiency of Soap Solutions in Power Laundry," by Elledge and McBride. Dr. Elledge at that time was a Senior Industrial Fellow of the Mellon Institute of Industrial Research, engaged in research for the Laundry-owners National Association.

In conclusion, it may be stated that the "dry-cleaning" process has a very high and hygienically satisfactory bactericidal efficiency, as measured by the standards used in public-health work for laundering, treating drinking water, milk and food products.

□

METHODS SUGGESTED FOR THE EXTERMINATION OF MOSQUITOES

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Read before the Sanitary Engineering Section of the American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 17, 1921.

FROM the point of view of the practical worker as distinguished from that of the entomologist, mosquitoes fall into three groups: (1) those which transmit disease, (2) those which constitute a nuisance, and (3) those which are entirely innocuous.

Fundamentally the life-cycles of all mosquitoes are the same: the egg laid in mud or water; the growth and development of the larva and pupa in water; the emergence of the adult and its search for food.

It would be futile to attempt the extermination of mosquitoes after they had reached the wing. Their freedom of action, their numbers and their general distribution would make such a course highly impracticable if not impossible. On the other hand, in the immature stages they are limited to certain relatively prescribed areas, dependent upon

certain conditions. It is at this point that they are most vulnerable, for the breeding areas may be found and eliminated, the conditions necessary to development may be changed.

In other words, the character of any antimosquito campaign is determined by two biological considerations:

1. That water is the only habitat of the larvae and the pupae of the mosquito.
2. That in these stages all but one of the species of economic importance must periodically rise to the surface for oxygen.

A mosquito-control campaign as thus determined consists of:

1. The inspections necessary to disclose the breeding areas and to keep them under observation.
2. Temporary or biological measures such as the use of oil, fish, screens and other means of destroying or preventing breeding without removing the source.
3. Permanent or engineering measures such as ditching, pumping, filling and the like to remove the source of the breeding.

In general, the extent of the "controlled" zone containing and surrounding the community to be protected depends upon the range of flight of the species involved. Some mosquitoes, such as the salt marsh varieties, are habitual migrants flying in appreciable numbers from thirty to forty miles from their place of origin. On the other hand, the malarial mosquito has never been positively traced further than one mile from its source, although the evidence does not preclude a longer flight under favorable circumstances. The determining factors are undoubtedly the size of the brood reaching the wing, the search for food and for water in which to oviposit, the direction and velocity of the wind, temperature and humidity. The semi-domesticated species are probably actuated by blood-hunger and usually seek human habitations. There is evidence to show a movement of the house-mosquito (*Culex pipiens*) for several miles against prevailing winds toward a large center of population.

A general rule that will serve in most cases where the salt marsh species are not present, can be stated as follows:

1. Eliminate all breeding within the area to be protected.
2. Control all open breeding places such as marshes, pools, streams and the like, in a half-mile zone surrounding the area to be protected.
3. Control all large marsh areas (25 acres or more) in an additional one mile zone.

Having assembled definite information regarding the local problem and having formulated a general plan for its solution, the health officer or other interested person is then ready to fire the opening gun of his campaign. This is, of course, an educational drive to bring the people of his community to a realization of the need for action and of the practicability of an antimosquito campaign. A vigorous educational and publicity campaign in a community that is really faced with a mosquito problem cannot fail to arouse public interest to a point where funds will become available either through private subscriptions or by action of the local governing body.

However it may be financed, if no provision is made for a commission or other special body to assume its direction, the project would logically be placed in the hands of the local board of health with the health officer in direct and active charge. If conditions are such that an intercommunity campaign is necessary, representatives of the various health boards might constitute a supervisory committee with a properly qualified expert in charge of the work.

The first step in actual operations is to find the breeding places. This involves a thorough canvass of every yard and premise in the community as well

as of every square yard of open or wooded country in the territory included in the project.

This work may be divided into:

1. House to house inspections.
2. Field inspections.

In the house to house inspections a sharp lookout must be kept for cisterns, cesspools, privy vaults, manure pits, blocked roof-gutters, flooded cellars, rain barrels and similar receptacles. Premises of stables, green-houses, truck-farms, cemeteries, blacksmith shops, tanneries, hat factories, and similar establishments where containers, tanks and vats are usually found, should receive particular attention.

As a rule these inspections need be made but twice a month. Some sections of an urban community may require only one or two inspections during an entire season. In rural or suburban sections where the houses are widely scattered these inspections may best be combined with the regular field inspections.

The frequency of field inspections depends upon the season and the corresponding period of incubation. Under climatic conditions that usually prevail in this vicinity (New York), three weeks is a safe allowance in May, in June twelve days, in July, August and September eight days.

It is well to divide the territory to be controlled into sections, each constituting one day's work for one inspector under normal conditions, yard and field inspections to be combined or kept on separate schedules as local conditions may require. In the built-up sections of suburban communities 100 to 200 yard inspections usually constitute a good eight hours' work. In the cities this number can be increased. In the open country three to six hundred acres will suffice for an inspector using a bicycle. Experience in each locality, however, must determine the final size of the sections.

It is likewise a good plan, if more than one inspector is used, to assign adjoining sections each day and have the men work through the territory in a group. This simplifies the handling of the men, and concentrates the oiling for the following day in one locality.

All mosquito extermination workers must be thoroughly impressed with the fact that in this work nothing can be taken for granted. A cover on a cistern is no guarantee that mosquitoes are not coming and going at will through a break in the coping. A pond full of fish may be as full of *Anopheles* larvae if vegetation is present in large amounts. A stream may go entirely out of its banks during a summer freshet, and upon the subsidence of the flood the swamp holes along its banks may be black with larvae and pupae. Mosquitoes will breed in the hoof-prints in pasture lots; in horse-troughs in constant use; in the flush-tanks of vacant dwellings; in fire-buckets; in fact, in a hundred unexpected places. There is no way by which one may know without actual examination whether or not a certain spot is breeding mosquitoes.

When searching for larvae it is not advisable to depend entirely upon sight even in comparatively clear water. Repeated dipping is the only safe procedure. A long-handled, white-enameled dipper is the most satisfactory aid. Sometimes dipping defeats its own purpose. Dropping a bucket into a well or cistern may give negative results, while the use of a pocket mirror to reflect a bit of sunlight to the bottom may disclose the breeding.

Having found the breeding, the next step is to destroy it. Although the use of oil and other larvicides should in every case be supplementary to such permanent measures as filling and draining, it must be resorted to in the control of areas or containers that cannot be eliminated, in the destruction of breeding that may occur in the drainage ditches themselves, and in many other cases where other methods are inadvisable or impossible.

The action of oil when used as a larvicide is largely mechanical. The for-

mation of a film upon the surface of the water prevents larvae and pupae from reaching the air, and causes suffocation. It is therefore apparent that the successful use of oil depends upon the quality of the film produced. This film should be continuous over the entire surface of the water. It should remain unbroken for at least three-quarters of an hour, preferably longer. It should spread rapidly and evenly. It should be of sufficient body to retain its killing qualities for several days.

Long experience shows that the most effective oil for this purpose is a "straight-run gas oil" as it is known at the refineries. This is a fuel oil ranging in gravity from 36° to 38° Baumé and in viscosity (Saybolt) from 34 to 38 drops per minute at 100° F. There is practically no fire hazard connected with its use. It will not burn when on the surface of the water. It is ignited in bulk with difficulty. It will, however, somewhat increase the inflammability of wood, straw and similar material with which it comes in contact. For this reason care should be exercised when spraying under buildings, around lumber piles and the like.

It is well, when purchasing oil for this purpose, to specify exactly what is wanted. If fuel oil is asked for, any one of half a hundred grades and qualities of oil may be supplied, some of them absolutely unsuited for the work required.

Oil is best applied by means of a sprayer, although in a pinch it can be spread satisfactorily with a tomato can and a quick flirt of the wrist. Three types of sprayers are in common use.

1. The knapsack sprayer. While this sprayer leaves the hands free in traveling over difficult ground, its dead weight on the back becomes exceedingly irksome. The operator is usually drenched with oil. Its range is short and the stream comparatively weak.

2. The compressed air sprayer. This sprayer is carried on a strap slung over one shoulder leaving the hands free when walking. Its range is short and the stream is weak.

3. The cylindrical pump sprayer. This sprayer consists of a cylindrical container with a ball-valve pump attached. It is carried in the hand and placed on the ground when operated. It will throw a heavy stream with considerable force a distance of 25 to 30 feet.

Both cylindrical pump and compressed air sprayers should be kept on hand, the former for oiling pools, ponds and other areas that must be covered from the banks, the latter for oiling ditches and marsh areas through which it is possible to pick a way. They should be equipped with interchangeable "Bordeaux" nozzles and oil proof hose. The compressed air sprayer should, in addition, be equipped with a spring-cock valve operated by the thumb.

There is no better container for carrying and handling oil in the field than a square, five gallon can with a strap handle. It makes a compact load in wagon or truck and the broad handle and squat shape make carrying easy.

The amount of oil required per unit of area is a question that is often asked, but which cannot be answered satisfactorily. The amount of vegetation present, the quality of the oil, the skill and judgment of the operator, and the conditions under which the work must be carried on, are too variable to permit the formulation of an exact rule. A very rough estimate may be made by allowing 1 gallon of oil to 150 square yards of clear surface. This proportion may run three or four times as high if vegetation and other disturbing factors are present.

Certain classes of breeding places, such as storm-water catch basins, cisterns, cesspools and the like should be oiled on a schedule, because it is cheaper to oil in this way than it is to inspect and then oil where breeding is found. Usually two treatments a month will suffice. With

these exceptions the oiling operations should be entirely dependent upon inspection reports.

Larvicides, other than oil, have proven of such uncertain value for general operations that their discussion will be omitted entirely.

Although oiling and similar temporary measures have a proper place in mosquito extermination work, it is obvious that the most satisfactory results can be obtained by permanently eliminating the breeding areas by filling, if possible; otherwise by draining and pumping.

Drainage by means of open ditches for mosquito eradication purposes involves the following considerations:

1. The area in question must be thoroughly and completely drained.

2. The ditches must be of sufficient capacity to handle the run-off of a maximum rain-fall within five days, but they should not be larger than absolutely necessary.

3. They should be as few in number as is consistent with proper drainage.

4. They should follow the straightest possible course with laterals opening into the collecting ditch at an angle.

5. They should have sufficient fall to maintain a velocity that will prevent breeding and be self-scouring. A grade of approximately 8 inches in 1,000 feet is satisfactory.

6. They should have side slopes as steep as the nature of the soil will permit.

7. All ditching must be kept in a proper state of repair with a complete annual overhauling in the spring.

Tile drainage, substratum drainage, the control of tidal marshes by means of dikes, tide-gates, pumps and similar engineering projects are beyond the scope of this paper. Excellent material on this subject is available in the government bulletins.

There is one important matter, however, that must be mentioned in any discussion on the subject of mosquito extermination. That is the value of a continuous study throughout the season of the distribution, density and species of mosquitoes on the wing, for the purpose not only of checking up on the effectiveness of the work, but also to indicate the presence of neglected breeding areas within the "controlled" area and also to detect invasions from outside areas. Such a study should be based on systematic collections of adults in accordance with standardized methods of collection. Such collections properly charted on a map of the area in question, and analyzed as to species and numbers will constitute one of the most effective weapons in the armory of the man in charge of the campaign.

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SEATTLE'S LOW MORTALITY FROM INFANT DIARRHEA

Seattle has the lowest death-rate of any city in the United States with 250,000 population or over. Being a newer city it has the opportunity to profit by the mistakes made in housing and sanitation in older communities. As a result there is no congestion, and no slums exist. The death-rate among infants is very low, due in part to an even, equitable climate such as prevails on the coast strip west of the Cascade range from northern California to southeast Alaska, but also due in a large measure to a concerted effort to better conditions controlling milk supplies, and educate the public by means of literature, etc., on child hygiene. An inspiring example of what Seattle has accomplished by concerted effort in this field is the striking reduction in the death-rate from diarrhea and enteritis under two years, which fell from 37.1 per 1,000 births in 1905 to 4.3 per 1,000 births in 1919.—John D. Manning, M.D., *Mother and Child,* March, 1922.

THE AMERICAN RED CROSS DIET IN THE FAMINE DISTRICTS OF CHINA

HARTLEY CLARKE EMBREY
Laboratory of Food Chemistry, Peking Union Medical College

WHEN the responsibility of feeding starving Chinese in certain famine districts was definitely assigned to the American Red Cross, the director, Mr. J. E. Baker, asked this laboratory for a diet which would utilize cheap food substances available in the Orient. The substances selected had to be of such a nature that they could be transported during the winter season long distances from the nearest train and fed easily to men working on the Red Cross highways.

The following diet was suggested: The rations for 10 men for 1 day to consist of:

1. Bread 13.3 catties (1⅓ catties per man). The bread to be made of 40 per cent ground peanut press cake, or 40 per cent ground soy bean press cake and 60 per cent millet flour, cotton seed meal, wheat flour, maize flour or kao-liang.*

2. With the bread is also given a soup. The ingredients for 10 men for 1 day consist of: 4 catties of meal, of which at least one should be soy bean meal or peanut meal.

The other 3 catties may be any convenient cereal.

5 gallons water
10 catties fresh vegetables
1/5 catty salt
1/5 catty powdered limestone, chalk, or lime
1 catty pork, bean oil or any other cheap oil.

Directions: The meal is cooked in 5 gallons of boiling water for 5 minutes. To this stock are added the vegetables, salt, lime, etc., and the whole is boiled not longer than 30 minutes. The fresh vegetables are absolutely essential, and if cabbage, turnips, spinach, carrots, etc., are not available, beans may be sprouted on the spot and bean sprouts used.

The American Red Cross bought materials as follows:

	Cents per catty
A cheap rice	1.4
Peanut press cake	2.8
Cotton seed meal	1.4
Soy beans	4.2
Red kao-liang	4.4
Millet	4.4
Corn	4.4

Based on these prices the food for 10 men for one day only cost about 76 cents Mexican silver or about 38 cents gold, or about 4 cents gold per man per day.

The press cakes mentioned in this diet are the residues after the oil has been pressed out for sale. As a rule, from 5 to 15 per cent of oil still remains in the cake, and from 37 to 46 per cent of protein.[1]

The kao-liang mentioned here is a sort of grain sorghum which constitutes over 40 per cent of the crops of northern China.[2]

Analyses show the following composition:

Water	Fat	Ash	Protein	Crude Fiber	Carbohydrate
White kao-liang					
13.74	4.99	3.02	11.86	1.63	64.76
Red kao-liang					
9.07	4.71	2.50	9.46	1.77	72.49

The above diet was used practically throughout the Shantung area of the American Red Cross. To a lesser extent it was used also in the northern half of the Pingtingchow, Shansi operation, and in southern Chihli on the Hantan Taimingfu route. Everywhere the diet gave excellent results. The natives were in good spirits, their general health was

*The peanut press cake meal and soy bean meal to be used interchangeably, viz.: 20 per cent of each, or 10 per cent of one and 30 per cent of the other, to make 5⅓ catties in all. The maize, kao-liang, rice, etc., to be used in any proportion to make up 60 per cent or 8 catties. This mixture of flours to be made into Chinese steamed bread or eaten as a gruel. A catty is about 1⅓ lb.

exceptionally good, and they were entirely free from diseases due to deficient diets and malnutrition. They were also free from germ diseases.

A recent letter from Mr. Baker says in part: "This diet worked out excellently. The men were in splendid health, and in the Shantung area there were only five cases of death from disease out of the entire number of workmen employed. Sixty-one thousand were employed at one time or another, and the average of about 20,000 during the period of operations lasting over seven months was reached."

In the southern half of the Pingting-chow operation a native diet consisting of a monotonous succession of kao-liang and millet was used. The health of the men receiving this diet was in striking contrast to that of those receiving the soy bean diet. The men on the millet and kao-liang diet were lacking in energy, their general health was poor and they were easy prey to every contagious disease. Mr. Baker writes: "I may say that the men on the millet and kao-liang diet are even now not as well and vigorous as those in the northern part of the same operation."

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CONTRIBUTORS TO THIS ISSUE

Those who were present at the Baker dinner recently know all about the life and works of **S. Josephine Baker.** She is both an M.D. and a D.P.H, and is one of the few women holding the rank of surgeon of the U. S. Public Health Service. In her twenty-three years of active service, over twenty of which have been spent in the New York City Health Department, Dr. Baker has been a special agent of the Children's Bureau, a practicing physician, a member of the Columbia and Bellevue faculties, president of the American Child Hygiene Association, and other things too numerous to mention.

Dr. T. M. Rivers, associate in bacteriology at the Johns Hopkins Medical School, has conducted extensive researches in the pathology and bacteriology of influenzoid organisms of various strains, and of other respiratory diseases. Previous to coming to Hopkins, he was stationed at the Santo Tomas Hospital, Panama.

Dr. William Hallock Park is one of the best-known bacteriologists in the country. He has been director of the New York City Health Department Research Laboratories continuously since 1894, is on the faculty of University and Bellevue Hospital Medical College, and is widely known as the author of *Pathogenic Microörganisms* and as the editor of Park's *Hygiene.*

Dr. Hazel M. Hatfield, a graduate in arts and medicine of Cornell, has had charge for the past six years of the bacteriological Milk Laboratory of the New York City Health Department, which is probably the largest of its kind in the world, handling about 60,000 samples a year. The bacteriological milk examination has supplanted, to a considerable extent, the physical inspection of the country sources.

Dr. W. W. Skinner has been on the staff of the Bureau of Chemistry, U. S. Department of Agriculture, for eighteen years, at first as a food chemist, but since 1908 as chief of the Water Laboratory. His varied researches in the chemistry of waters and solutions have admirably fitted him for an authoritative pronouncement on soft drinks.

Dr. H. E. Barnard has had an extensive career in state public-health work, first in New Hampshire, where he served as chemist to the Board of Health, and then in Indiana, where he was state food and drugs commissioner and commissioner of weights and measures. He was also a food and drug inspection chemist of the U. S. Department of Agriculture and a member of the Federal Food Administration before entering the field of industrial research.

Dr. J. W. Robinson, deputy health officer of the Los Angeles County Department of Health in charge of contagious diseases, was in private medical practice for several years after receiving his degree from the University of Illinois. In 1910 he was put in charge of the health of several thousand employees on a Mexican railroad, where he

(*Continued on page 561*)

EDITORIAL SECTION

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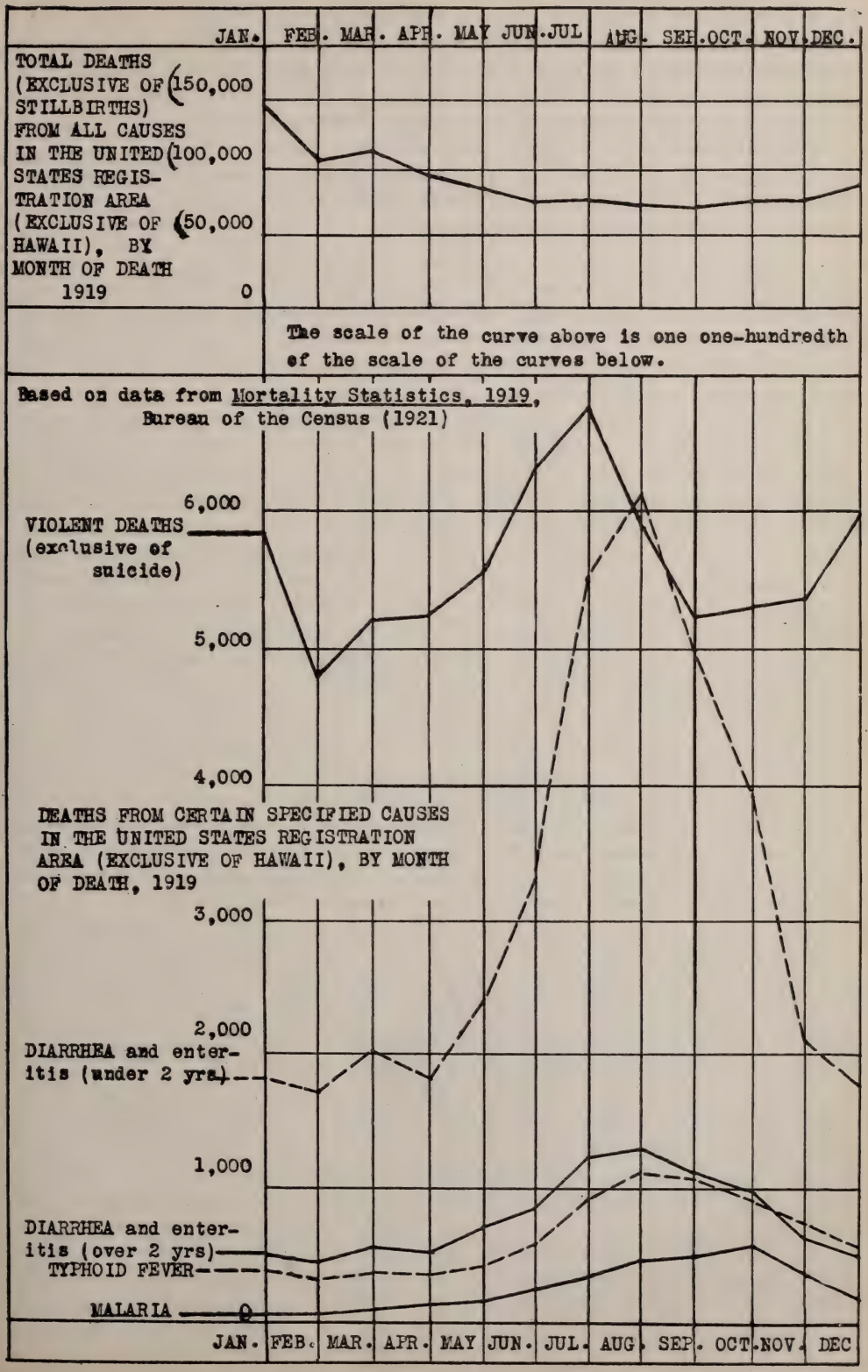
MAKE THIS THE HEALTHIEST SUMMER!

Seasonal mortality and morbidity are no new ideas to vital statisticians. Whether they have been taken to heart as thoroughly as they should be by health administrators who control policy and appropriations, is another question. That respiratory diseases are primarily winter diseases, reaching their peaks in January and February, is a commonplace, and there is no gainsaying their deadly importance in the sanitarian's scales. The main and most persistent effort of every health officer must always be against the pneumonias, influenza, diphtheria, measles, whooping cough, bronchitis, and tuberculosis, in all their varieties.

But every springtime reminds us again that there exists a smaller group of less deadly diseases which take their main toll in the months of summer and early fall. We amused ourselves recently by looking over the 1919 volume of the Census Bureau's *Mortality Statistics* and jotting down some monthly figures in the form of a graph. The result is seen on the opposite page.

The first fact that strikes us in examining the upper part of the chart showing the total deaths in the Registration Area from all causes is that the line from June to November is almost straight, running uniformly under 80,000 deaths a month, and that, indeed, these figures are the lowest of the entire year—certainly a favorable showing.

Looking to specific causes of death, however, we note the five major ones which show marked upward trends during the summer months. Comparison of the "all-causes" curve with the specific curves is not a strictly accurate procedure, for the reason that exigencies of space have compelled us to use different scales, allotting the same amount of vertical rise to 100,000 deaths from all causes as to 1,000 deaths from one of the five specific causes.


JAN. FEB. MAR. APR. MAY JUN. JUL AUG. SEP. OCT. NOV. DEC.
TOTAL DEATHS (EXCLUSIVE OF STILLBIRTHS) FROM ALL CAUSES IN THE UNITED STATES REGISTRATION AREA (EXCLUSIVE OF HAWAII), BY MONTH OF DEATH 1919
150,000
100,000
50,000
0
The scale of the curve above is one one-hundredth of the scale of the curves below.
Based on data from Mortality Statistics, 1919, Bureau of the Census (1921)
6,000
VIOLENT DEATHS (exclusive of suicide)
5,000
4,000
DEATHS FROM CERTAIN SPECIFIED CAUSES IN THE UNITED STATES REGISTRATION AREA (EXCLUSIVE OF HAWAII), BY MONTH OF DEATH, 1919
3,000
2,000
DIARRHEA and enteritis (under 2 yrs.)
1,000
DIARRHEA and enteritis (over 2 yrs)
TYPHOID FEVER
MALARIA
0
JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC

Thus a considerable peak in any specific cause might reflect itself but imperceptibly in the upper curve. For our purpose, however, this fact does not invalidate the lesson of the graph, which is that while for the general mortality, summer is the most favorable period of the year, for certain diseases it is distinctly a danger period, demanding effective precautionary measures. Why should this be? Is there any sufficient reason why these summer modes cannot be cut down to a level corresponding to the general healthfulness of outdoor living as evidenced in the mortality from all causes? Let us examine more closely the specific causes.

Violent deaths (exclusive of suicide) includes the causes numbered 164-186 in the old International List. Among these, those which might conceivably show a wide seasonal variation are: poisoning by food, accidental drowning, automobile accidents and injuries, effects of heat, and lightning. None of these are major health problems, and in fact most of them can hardly be called health problems at all. They are chiefly problems of safety. But in many communities the health officer is in the most strategic position to affect them by an occasional and inexpensive bit of propaganda, and the public should be kept constantly aware of these summer dangers. Spoilage of food, bathing too early in cold waters or by persons whose swimming skill is undeveloped, carelessness both of pedestrian and motorist when the tourist season is at its height, unwarranted exposure to sunstroke or to electrical storms—these are matters which help to account for the erratic upward tendency of the "violence" curve in summer months. As every one knows, these problems, especially those of vehicular accidents, are becoming increasingly acute in our modern urban civilization. The health officer who is interested in saving life will coöperate with the police and other officials and voluntary agencies in their solution.

Turning to the diseases which show the most marked summer rise, we find that all are either of fecal origin or are insect-borne. To a remarkable degree these are preventable diseases. Diarrhea, the *bête noir* of mothers of young babies, popularly characterized as "summer complaint" and by the notion of the menacing "second summer," lies distinctly within the control of dietary and sanitary science. A strong child-hygiene policy will cut off this annual "mountain" at its source—in imperfect mothercraft.

The incidence of the intestinal diseases in the adult population can be attacked by many of the same methods. Of course the modern community pays particular attention to its water and milk supply, and so well has this been driven home of late years that typhoid and adult enteritis are vanishing diseases within the limits of settled communities. But another factor that has not been fully faced is responsible for much of the peak that still remains —vacation typhoid. It is in the out-of-the-way resorts where full-time scientific supervision of the water and food supply is difficult to maintain that these diseases find their last stronghold. The minor epidemics that occasionally follow Sunday-school picnics are ample evidence of the source of attack. The approach of the vacation season gives the health officer opportunity, therefore, for an intensive educational campaign. City people must be taught to choose their camping sites, their country boarding homes, their picnic grounds, with due regard to the relation of the insanitary privy, the infected well or spring, unscreened manure, polluted milk, etc., to disease.

Finally, all of these warnings serve only to remind us of the ubiquity

of man's two great insect enemies—the fly and the mosquito. That malaria finds its sole carrier in the latter is now a practical certainty. And the success of demonstrations of malaria control, which have been made in Alabama and other mosquito-ridden regions, is earnest that the South and the coastal plains can be made as free from this disease as cooler or higher sections of the country. But the mosquito or fly campaign that bases its hopes on vigorous "swatting" or various species of traps, however meritorious, can never attain complete success. The modern emphasis on prevention demands that breeding-places be sought out and made inhospitable to larvae and young alike.

These, then, are a few of the measures which the progressive sanitarian will be utilizing this summer to reduce those "steeples" to the all-the-year-around level. And let him not forget that a coöperating public is the absolute prerequisite to his goal.

ONE WOMAN'S LIFE

A notable event in the history of child hygiene, as well as of the feminist movement, was the testimonial dinner to Dr. S. Josephine Baker, given at the Hotel Commodore, New York City, April 25. Dinners to women are not frequent; dinners to women physicians still fewer; and dinners to pioneer women public-health officials who have served continuously through twenty years of political vicissitudes are unique.

Since the year 1908, in which she established the first bureau of child hygiene in America, the baby death-rate in New York City has fallen from 144 deaths under one year of age per 1,000 births to 71.1 in 1921, a toal saving of 82,549 lives over what would have occurred had the death-rate of 1908 continued. Dr. Baker feels that this achievement, while gratifying, has been the easiest part of the record, and says that another halving of the infant mortality of New York City within the next ten years is quite within the range of possibilities. The baby death-rates in the most congested foreign-speaking quarters of the city are lower than those in the best districts of Park Avenue and Riverside Drive. The foreign-born population, larger in New York than in any other great city in the world, has been willing and anxious to learn from Dr. Baker's indefatigable cohort of more than 500 nurses and specialists, scattered through 68 baby-health stations and prenatal clinics.

So that the problems in child hygiene which Dr. Baker foresees to be the primary ones of the future are the education of the native white American to higher standards of responsibility, in the increase of the birth-rate among parents of superior qualities, as well as the reduction of the death-rate; the attainment of better dietary knowledge and its diffusion throughout all classes of society; the rescue of the pre-school-age child from the relative neglect into which he has fallen between the maternity clinic and the primary school, and of the adolescent industrial child compelled to leave school for gainful employment; the thorough periodical physical examination of all children for the discovery and forestalling of the commoner defects; the systematic training of future generations of mothers in little mothers' leagues and similar organizations.

The distinguished service of this great woman, happily recognized in the full tide of her achievements, with no thought other than for a future of no less length and even greater fruition, should be the one incentive needed to all child hygienists to push forward to a complete conquest of the problems toward which Dr. Baker has blazed the way.

JULES SCHEVITZ
1897-1922

Jules Schevitz, general secretary of the Oklahoma Public Health Association, died on March 22, 1922, at the age of 24, at the very dawn of a promising career of attainment and service. Even at his early age, he had attained a degree of prominence and accomplishment usually unsurpassed by men of maturer years. The remarkable and affectionate tribute of his friends and admirers, coming from all corners of Oklahoma on the day of his funeral to do homage to his memory, eloquently bespeaks his degree of attainment and service, and the place which he had won for himself in the hearts of all.

Jules Schevitz was born in Brooklyn, N. Y., on June 1, 1897. Educated in the public schools of the city, he rapidly made his way to Townsend Harris Hall and later to the College of the City of New York, from which he received the degree, Bachelor of Science in 1917. At the end of his junior year in college, he developed pulmonary tuberculosis and through the active interest of his friends, and especially of Professor C.-E. A. Winslow, he was able to spend a year at Trudeau, N. Y. There he had the good fortune to come under the spell of Dr. Edward Livingston Trudeau, a pioneer in sanatorium treatment of tuberculosis in the United States.

At the end of one year, he returned to New York City, robust in health, and mature in thought. He resumed his studies at the College of the City of New York, specializing in the biological sciences, and particularly in public health. His schedule being light, he undertook a public-health survey of Union Hill, N. J., which he conducted in a highly efficient and satisfactory manner. During the summer, he conducted a tuberculosis survey of the State of New Jersey.

In September, 1917, at the age of 20, this youth was appointed secretary of the Oklahoma Tuberculosis Association. Little had been done in the organization and conduct of the antituberculosis work in Oklahoma, and almost single-handed, Mr. Schevitz had to begin to build the splendid monument to tuberculosis and public-health work which he left behind. Plunged into the seal sale campaign immediately after his arrival in Oklahoma, he was able to raise $40,093.67, an increase of 2,000 per cent over the amount raised the preceding year. This insured an extensive and progressive public-health and tuberculosis campaign during the coming year.



An active and interested executive committee for the State Association was appointed, and similar committees were found to serve first in the larger municipalities and then in the more rural parts of the state. Trained tuberculosis and public-health nurses were carefully selected from all parts of the United States. Tuberculosis clinics were established and placed under competent medical supervision, infant and child welfare work was initiated and conducted, and similarly, school nursing activities were begun and fostered all over the state. Special attention was given to the introduction of public-health activities among the Indians and Negroes, and to the care of discharged tuberculous soldiers.

Realizing the need of improving the general public-health situation in Oklahoma, as a means of combating tuberculosis, Mr. Schevitz instituted a series of public-health surveys in the larger cities in Oklahoma, thus conducting a thorough, state-wide public-health survey of urban conditions in an American state for the first time. Public-

health nursing institutes were held from time to time, exhibits were planned and erected, special pamphlets on tuberculosis, infant and child welfare and on the communicable diseases were printed and widely distributed. Other methods used in the campaign of public-health education, and particularly the medium of the newspaper, were employed. Mr. Schevitz also edited a popular monthly bulletin which contained all the news of the activities of the Association. In addition, he served as a contributing editor to the *Nation's Health*.

Realizing the need of adequate hospital facilities for the care of the tuberculous in Oklahoma, Mr. Schevitz waged a legislative campaign for sanatoria, and succeeded in getting the legislature to pass a bill providing for the construction and maintenance of three sanatoria—two for whites and one for the colored tuberculous at Clinton, Talinina, and Boley, Oklahoma.

The above, which is but an incomplete list of the activities and attainments of Mr. Schevitz, speaks very highly of his fruitful young life. As a worker he was indefatigable, and there was no limit to his aspirations for the improvement of the public health of Oklahoma. In the brief span of four years and six months, he had placed Oklahoma in the forefront of public-health progress, and made her name known abroad as well as at home.

He loved Oklahoma. To him it was a land of rare opportunity. He saw its tremendous possibilities and strove as hard as he knew how to make his particular contribution to its devolpment. He came to give to Oklahoma, and in so doing he was amply rewarded. His was the durable conquest, one that will linger in the minds of men for many years, and in the work of the Oklahoma Public Health Association, as long as it endures.

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LETTERS TO THE EDITOR

Dr. Smith's Diet

Statements made by Dr. Stephen Smith in interviews stimulated by the public interest in his advanced age, following the recent semi-centennial celebration, have been misinterpreted and misquoted in a number of newspapers over the country. Dr. Smith has sent the JOURNAL the following letter to counteract the abuse of these statements by propagandists:

DEAR SIR:

In denial of the statements printed in some of the newspapers recently, let me say that I never said I attributed my long life to the use of wines and liquors. Except when in Paris in 1894, when, at the suggestion of a French physician, I drank wine at the banquets tendered the delegates to the International Sanitary Conference, of which I was a member, I never before nor since used wines nor liquors. I do not believe that alcoholic stimulants should be used except as a medicine, and then prescribed by a physician.

I shall be glad if you will contradict these statements as printed, as you have opportunity, and I shall appreciate your coöperation.

STEPHEN SMITH.

✣

A Dangerous Practice

TO THE EDITOR:

Please permit me to call the attention of your readers to the dangerous practice of throwing boards down with nails sticking from them, and leaving them lying around, a constant danger to barefoot children or anyone with worn thin shoe soles.

This is a very common habit and causes many deaths from tetanus or lockjaw where not attended to promptly and skillfully. *BETTER BE SAFE THAN SORRY.*

A. L. POTTER,
Independence, Kansas.

ASSOCIATION NEWS

LIST OF NEW MEMBERS

Proposed for election to the A. P. H. A. April 1 to April 30, inclusive.
Names of Sponsors are set in **Bold Face Type.**
Names of New Members are set in Light Face Type.

MAINE

Dr. Clarence Kendall, Augusta, Maine.
Herbert Luther Lombard, M. D., Presque Isle, Maine, District Health Officer.

KANSAS

Harold B. Wood, M. D., Dodge City, Kansas.
J. E. Hawley, M. D., Burr Oak, Kansas.

TEXAS

Mr. A. W. Hedrich, New York, N. Y.
J. B. Florence, M. D., State Board of Health, Austin, Texas. President State Board of Health and State Health Officer.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 8th of each month for publication on the 20th. Mail to New York office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in New York City. In replying give age, professional training, salary requirements, previous positions held and three or more references.

Wanted: Assistant in bacteriology and public health in middle western university of more than 5,000 students. Salary $2,500. Position open not later than September 1st. Address R. P. M. 483, care of this JOURNAL, New York address.

Wanted: Bacteriologist, male, for position in hospital laboratory. Capacity 800 beds. In large city of Central West. Salary $2,400. Two weeks' vacation with full pay after one year's service. Address S. C. 482, care of this JOURNAL, New York address.

Wanted: National field organizer. Write qualifications as to education, training, experience, public speaking, organization and health propaganda. Salary, $5,000 to $6,000. Address American Society for Control of Cancer, 370 Seventh Avenue, New York City.

Notice of Examination for Entrance Into the Regular Corps of the United States Public Health Service

Examinations of candidates for entrance into the Regular Corps of the U. S. Public Health Service will be held at the following named places on the dates specified:

At Washington, D. C.....June 12, 1922
At San Francisco, Cal.....June 12, 1922

Candidates must be not less than twenty-three nor more than thirty-two years of age, and they must have been graduated in medicine at some reputable medical college, and have had one year's hospital experience or two years' professional practice. They must pass satisfactorily, oral, written and clinical tests before a board of medical officers and undergo a physical examination.

Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

H. S. CUMMING, Surgeon General.

Wanted: Director of state health department laboratory with appropriation of $12,000 per annum. Director has full and free control under State Board of Health. Present salary $3,000, but application will be made to legislature for increase. Address State Board of Health, Indianapolis, Ind.

Wanted: Graduate nurse, who has had training in contagious disease work, capable of taking charge of a forty bed municipal contagious disease hospital. Salary, $125, with board, room and laundry. Address Dr. W. W. Johnston, Health Commissioner, Racine, Wis.

Wanted: Laboratory technician, familiar with milk testing. Health Department, City of Joplin, Mo.

POSITIONS WANTED

Positions wanted announcements will be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 8th of the month.

Wanted: Experienced bacteriologist, B. S., Ph. G., C. P. H. degrees, age 31, married, Protestant, capable of handling and directing bacteriological, serological and chemical work pertaining to public-health control. Would consider a position with state or municipal laboratory. Southern states preferred, but other sections considered. Salary expected $3,000 per year. Address M. R. M. 209, care of this JOURNAL, New York address.

Wanted: Position as director or assistant director of public-health laboratory or instructional position in biochemical department of recognized university by man, age 28, with seven years' experience in teaching, army laboratory, and public-health laboratory work. Large initial salary not so much desired as congenial working conditions and chance for advancement. Can furnish best of references. Address V. E. 205, care of this JOURNAL, New York address.

Wanted: Sanitarian and malaria control expert wishes to make a change. At present has charge of one of the largest malaria control jobs in the South. During the season of 1920 kept the malaria in the district to a 10 per cent increase, while the ouside districts increased 400 per cent. Is a competent executive, can handle men and can get results. Address Harrott 212, care of this Journal, New York address.

Wanted: County health work by trained and experienced health worker, six years in county work. First class references. Address W. H. 206, care of this JOURNAL, New York address.

Wanted: Position by a graduate in medicine and public health, experienced in all phases of health work, county, state and municipal, including administrative and educational work. Best of references furnished. Address L. W. 207, care of this JOURNAL, New York address.

Wanted: Position by a graduate in medicine and public health; eight years experience as bacteriologist, city and county health officer, vital statistician, general medical practice, professor of hygiene and university physician. No salary less than $3,000 considered. First class references. Address K. T., care of this Journal, New York address.

Wanted: Position as director or assistant director of public-health laboratory or instructional position in bacteriological department of recognized college or university by man, age 26, with M. S. degree and six years experience in teaching, army laboratory and public-health laboratory work. Can furnish best of references. Address J. M. 214, care of this Journal, New York address.

Wanted: Better position as municipal health officer by successful commissioner in southern town of 8,000. Graduate of northern Class A. medical school; married; 48 years old. Prominent in mosquito eradication work. Experienced in food inspection and health legislation. Salary required $2,700 and expenses. Address B. H. P., 210, care of this JOURNAL, New York address.

Wanted: Public health executive desires a change. Has charge of the bureaus of food, milk and laboratories in a city whose health department is rated high by the United States Public Health Service. Is a competent chemist and bacteriologist; has the executive ability to control a large laboratory, and has a good working knowledge of the relation and application of the theories of vital statistics to public health. Is thoroughly grounded in the philosophy of public-health work. Has the energy, ingenuity and ability to develop a public health department that will give maximum return on a minimum investment. Address Meredith 213, care of this Journal, New York address.

BOOKS AND REPORTS REVIEWED

Obstetrical Nursing. *Carolyn Conant Van Blarcom. New York: Macmillan Company,* 1922. *Price* $3.00.

The preface describes concisely the scope of the book and at the same time indicates its unique value. It is well known to all nurses who have done obstetrical nursing, for other than one doctor, that there is tremendous difference of opinion among obstetricians as to the best method to be used in practically every condition treated, with the result that nurses trained in a school where one method is followed are not always qualified to give the most understanding help to an obstetrician who employs another method of treatment. There has been a distinct need for a book which would give, as does this one, "parallel descriptions of dissimilar nursing procedures," and which would bring out at the same time the fact that methods unfamiliar to a nurse trained under the guidance of one particular obstetrician may be quite as efficacious as those in which she has become expert. As well as giving these dissimilar nursing procedures for the same condition Miss Van Blarcom gives clearly the cause of the condition and the purpose for which the nursing procedure is prescribed. Such a book cannot fail to increase the nurse's understanding and thereby improve her work.

Furthermore, the book is eminently readable. One feels not at all as though reading that abhorred thing, a textbook, but rather enjoying a rare treat such as when one takes times from work for a particularly pleasant half day's reading. The book is infinitely more than a textbook. It emphasizes constantly the opportunities and privileges, as well as the responsibilities, of obstetrical nursing.

The illustrations add greatly to the value of the book. A nurse who merely looks at the illustrations with their particularly clear captions would add much to her knowledge of, and interest in, obstetrics.

It so clearly meets a need which has been keenly felt by all who have either done or taught obstetrical nursing that it is difficult to discuss it without seeming extravagance. Undoubtedly there are points which may be considered controversial, but the book so far supersedes other books on obstetrics for nurses that these are lost sight of in the general excellencies. No nurse confronted with the serious and difficult problems of obstetrical nursing need feel unprepared if she has made herself familiar with the teachings of this book. Public-health nurses will find much help within its pages, for it is written from the standpoint of obstetrical nursing in the home rather than obstetrical nursing in the hospital.

ANNE A. STEVENS, R. N.

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Plumbing Fixture Traps. *A. E. Hansen. New York: Privately published,* 1921. *Pp.* 83. *Price,* $2.00.

There is no doubt that a great difference of opinion exists as to the efficiency of anti-siphon traps or the extent to which they may be safely used. Ignorance of the scientific principles involved is largely responsible. The author of *Plumbing Fixture Traps,* by giving the historical review of the efforts to develop a satisfactory anti-siphon trap and discussing, even though it is from a biased standpoint, the tests of the devices offered at various times, has rendered a real service in the investigation of a problem that should have thorough study.

It is unfortunate that the author should assume that a desire to find a trap that would meet the conditions of service, disqualifies an inventor as a judge of performance. To discredit work of this kind is to discourage development. If anything can be evolved that would cut down the cost of installation, even to the extent of a few dollars, only in the small residence for one or two families, it should be encouraged. What is needed at this time is reliable information as to the proper limitations in the use of such devices that may be developed.

It is in equipments of a more or less extended character that doubt exists at present as to the performance of anti-siphon traps. The author does not discuss their use in the small house, which, after all, is the great issue, and the one that most af-

fects the general public. In 1920 over 40 per cent in number and value of the buildings for which permits issued in 131 cities of over 25,000 population, in the United States, were one and two family residences. If the total number of such homes in all cities, villages and suburbs, where plumbing is used, could be determined, it would no doubt run up to 75 per cent or more of all buildings having plumbing equipments.

A careful perusal of the book under consideration will be of great assistance to any one interested in the solution of the problem. RUDOLPH P. MILLER.

"CHILD HEALTH IN ERIE COUNTY, NEW YORK"

a cooperative inquiry by seven national and two state organizations into conditions affecting child health in the rural sections and villages. 20 cents, postpaid.

NATIONAL CHILD HEALTH COUNCIL
Washington, D. C. Advt.

A LIST OF BIBLIOGRAPHIES ON HEALTH SUBJECTS

COMPILED BY JAMES A. TOBEY

In order that sanitarians may know where to find lists of books and pamphlets on various health subjects, this particular list has been compiled. It is a bibliography of health bibliographies and contains references to all the available, up-to-date compilations of references that we have been able to locate. It will be appreciated if omissions are brought to our attention.

1. *Child Care.*

Annotated Subject Index and Order List of Books and Pamphlets, Including Government Reports, on Maternity and Child Welfare in England and Scotland. August, 1920. American Red Cross, Washington, D. C.

Bibliography of the Education and Care of Crippled Children. 1st Edition, New York. D. C. McMurtrie, 1913. 99 pp.

Bibliography on the Care and Feeding of Infants and Children. 1921. Bureau of Child Hygiene, New Jersey State Department of Health, Trenton, New Jersey. (Reprinted from data of Massachusetts State Department of Health.)

Bulletins in Foreign Languages. (A List.) U. S. Children's Bureau, Washington, D. C.

Child Welfare. Selected List of Books for Parents. 1919. Federation for Child Study, New York.

Mother and Child. Monthly magazine of the American Child Hygiene Association, Washington, D. C., has a bibliography in each issue.

American Medical Association. Council on Health and Public Instruction. Child Welfare; selected list of books and pamphlets compiled by E. L. Bascom and D. R. Mendenhall. 40 p. Chicago, The Assn. 1918.

Iowa. State University of Iowa. Child Welfare Survey and Bibliography. (Extension bulletin, No. 16, 1916.)

Munro, W. B. Bibliography of Municipal Government in the United States. Cambridge, Harvard University, 1915. Poor Relief and Child Welfare, p. 367-70.

Russell Sage Foundation. Library. Child Welfare in War-time. (Bulletin No. 30, 1918.)

2. *Clean Up Campaigns,* List of References to. Municipal Reference Library, Chicago, Ill.

3. *Eugenics.*

New York (State). State Board of Charities. Bureau of Analysis and Investigation. Bibliography of Eugenics and Related Subjects. 130 p. Albany, The Board, 1913. (Eugenics and Social Welfare Bulletin No. 3.) Includes sections on feeble-mindedness and sex hygiene.

4. *Health Center* Bibliography. April, 1921. American Red Cross, Washington, D. C.

5. *Health, General.*

Annotated Bibliography on Eyesight and Lighting (In preparation). Mrs. L. D. Goldsbury. The Eyesight Conservation Council of America, Inc. Times Building, New York.

Community Health Bibliography. February, 1921. Russell Sage Foundation, New York.

Foreign Language Bulletins, List of. (Includes Health and Child Welfare.) June, 1921. Young Women's Christian Association, New York.

Guides to Health. Selected List of Pamphlets on Health for Distribution by Red Cross Health Centers. May, 1921. American Red Cross, Washington, D. C.

Guide Posts on the Road to Health. A list of Books. By S. L. Halliday. April, 1919. Municipal Reference Library, New York.

Health (Supplemental to above) April, 1921. Municipal Reference Library, New York.

Health; Diseases, Drugs, and Sanitation. List of publications for sale by Superintendent of Documents, August, 1921, Washington, D. C.

Health Officers, Bibliography for. New York State Department of Health, Albany, New York.

Health Quotations. Compiled by James A. Tobey, August, 1920. American Public Health Association, New York.

List of Books on the Prevention of Disease, compiled by the Medical Literature Committee of the Committee on Public Health Education among Women, American Medical Association. Chicago, Illinois.

Some Good Books on Community Health, Health Library of the Common Service Committee, National Health Council, New York.

Suggested List of Books on Hygiene for the Town Library. By H. L. Wedgwood. The Commonhealth. Jan.-Feb., 1920. Massachusetts Department of Public Health, Boston, Mass.

California. Health, State Board of. Bureau of Registration of Nurses. Annotated List of Text and Reference books for schools of nursing. 53 p. Sacramento, The Board, 1916.

Munro, W. B. Bibliography of Municipal Government in the United States. 472 p. Cambridge, Harvard Univ. 1915. Sanitation and Public Health, p. 228-298.

Smith, A. W. Selected Bibliography of Sanitary Science and Allied Subjects, 37 p. Boulder, Colo. Greenman, 1919. (Prepared with reference to the needs of students pursuing the course in sanitary science in the College of Liberal Arts, University of Colo.)

6. *Hookworm* Bibliography. 1922. International Health Board, New York.

7. *Industrial Hygiene.* See A List of Bibliographies on Industrial Engineering and Management. May, 1920. Society of Industrial Engineers, New York.

Russell Sage Foundation. Library. Industrial hygiene; a selected bibliography. (Bulletin No. 36, 1919.)

8. *Legislation.* Bibliography of References to Health Legislation. By James A. Tobey. Reprint 684, Public Health Reports (August, 1921). U. S. Public Health Service, Washington, D. C.

9. *Mental Hygiene.*

Bibliography of Feeble-Mindedness in its Social Aspects. Crafts, Leland Whitney. Faribault, Minnesota. Minnesota School for Feeble-Minded and Colony for Epileptics, 1917. 73 pp. Journal of Psycho-Asthenics. Monograph supplements, V. 1. No. 3, March, 1917.

Bibliography of Feeble-Mindedness in Relation to Juvenile Delinquency. Whittier, California. Crafts, Leland Whitney. Boys' Printing Instruction Department, Whittier State School, 1916. p. 195-208. Reprinted from Journal of Delinquency, 1, No. 4, September, 1916.

Feeblemindedness. A Selected Bibliography. February, 1916. Russell Sage Foundation, New York.

Publications Distributed by the National Committee for Mental Hygiene, List of. January, 1920. New York.

National Committee for Mental Hygiene. War Work Committee. Neuropsychiatry and the War, a bibliography prepared by M. W. Brown, edited by F. E. Williams.

10. *Moving Pictures* (Health).

Municipal Reference Library, New York, List. June, 1918.

National Board of Review of Motion Pictures, New York, September, 1920. List.

National Tuberculosis Association Bulletin, New York. February, 1921. List.

New York County Chapter, American Red Cross, New York. List (not for distribution).

U. S. Bureau of Education, Washington, D. C. 1922. List.

11. *Nutrition.*

Bibliography of Investigations Bearing on the Composition and Nutritive Value of Corn and Corn Products. Issued in mimeograph form by the National Research Council, Washington, D. C., 1920. 198 pp. Keith, Mary Helen.

Bibliography of School Lunches. U. S. Bureau of Education, Washington, D. C.

Foods and Cooking. List of Publications for sale by Superintendent of Documents, August, 1920. Washington, D. C.

Lunch Hour at School (Health Education No. 7). U. S. Bureau of Education, Washington, D. C. 1920. Contains bibliography.

Nutrition Bibliography. Prepared by New York Nutrition Council. June, 1921. New York County Chapter, American Red Cross, New York.

Nutrition Bibliography. Mother and Child Magazine, July, 1921. Baltimore, Md.

12. *Physicial Education.*

Bibliography on Educational Hygiene and Physical Education. T. D. Wood and M. Reesor, Teachers College, Columbia University. New York.

Book List of the American Physical Education Association, Springfield, Mass.

Selected Bibliography of Physical Training and Hygiene. 1910. Brattleboro, Vermont, 1911. Author has a constantly recurrent bibliography in American Physical Education Review.

Russell Sage Foundation. Department of Recreation. Sources of Information on Play and Recreation (revised and enlarged edition, 1920), by H. R. Knight and M. P. Williams. 48 p. 1920. Physical Training and Gymnasia, p. 12-14.

Selected Bibliography of Physical Training and Hygiene. (In American Physical Education Review V. 22, Jan.-Aug., 1918.)

13. *Public Health Nursing.*

Bibliography for Public Health Nurses. New York State Department of Health, Albany, New York.

Reading Lists on Organization, Administration and Development of Public Health Nursing, New York. October, 1920. National Organization for Public Health Nursing. New York.

14. *School Hygiene.*

Annotated Bibliography of Medical Inspection and Health Supervision of School Children in the United States, 1909-1912. U. S. Bureau of Education, Washington, D. C.

Annotated Bibliography on School Feeding. Bryant, Louise Stevens. In "School Feeding" by same author. Philadelphia, Pa., 1913. p. 261-97.

Bibliography on the Posture of School Children. Bancroft, Jessie Hubbell. In "The Posture of School Children" by same author, New York. MacMillan Company. 1913. p. 309-22.

Books on Health as Related to the School Child. March, 1921. New York State Library, Albany, New York.

Suggestions for a Program for Health Teaching in the Elementary Schools. (Health Education No. 10) U. S. Bureau of Education, Washington, D. C., 1921. Contains bibliography.

Pierce, A. E. comp. Catalog of literature for advisors of young women and girls. 85 p. N. Y. Wilson, 1921. Section on School Hygiene, p. 29-32, includes references on: Care of body, Health of students, Physical education, Posture, and Recreation.

15. *Social Hygiene.*

Books on Sex Education, U. S. Public Health Service, Washington, D. C.

What to Read on Social Hygiene. 1920. American Social Hygiene Association, New York.

List of Publications, 1922. American Social Hygiene Association, New York.

16. *Surveys.*

Bibliography of Health Surveys, Cleveland, Ohio. Hospital and Health Survey. Part two.

Bibliography on Public Health Surveys. In "Public Health Surveys" by Horwood, Murray Philip. New York, John Wiley & Sons, Inc., 1921. p. 371-84.

Social Survey, December, 1915. Russell Sage Foundation, New York.

17. *Tuberculosis.*

Tuberculosis. A Selected Bibliography. August, 1916. Russell Sage Foundation, New York.

Tuberculosis. A Selected List, compiled for the use of physicians, nurses, patients, librarians, and others. National Tuberculosis Association. June, 1921, 3 p.

PUBLIC HEALTH NOTES

Abstracts by D. Greene, M. D., James A. Tobey and Homer N. Calver.

National Negro Health Week.—This year's Negro Health Week, the eighth held, was conducted by Dr. R. R. Moton, of Tuskegee Institute, April 2-8, under the auspices of the Annual Tuskegee Negro Conference and the National Negro Business League, and in coöperation with the U. S. Public Health Service, national and state tuberculosis societies, the Red Cross, American Social Hygiene Association, and many other organizations.

The purpose was to reduce morbidity and mortality among Negroes by educational methods, with particular emphasis on tuberculosis, infant mortality and venereal diseases. Lectures were given, films shown, and exhibits held in public schools, theaters, churches, libraries and among Negro employees at their work. Negro doctors and nurses were used for these lectures. Radio broadcasts, sent from Washington under the U. S. Public Health Service, reached about 350,000 people.

Among other points brought out was the fact that many deaths could be avoided by observances of more sanitary conditions, that in New York City alone the death-rate of Negroes was 70 per cent higher than that of white persons, but that during the last eight years this had been reduced 9 per cent.

A special feature of this year's observance was the setting aside of each day of the week for a special subject, as follows: Monday, venereal disease control measures; Tuesday, extermination of flies, mosquitoes, and all disease-carrying insects; Wednesday, children's day, with stories of health crusades and covering a celebration of the birthday of the late Booker Washington; Thursday, tuberculosis day, with special attention given to impressing the fact that tuberculosis is not hereditary; Friday, church sanitation; and finally Saturday as a general clean-up day.

✣

Inefficiency in Public Health Administration.—During the late war, efficiency was everywhere demanded. It thrilled the nation for a time, but the excessive use of the word soon made it a by-word, and a few months of overaction was followed by relaxation and inefficiency. This is true of public-health work, for in some localities it has declined to a deplorable degree. Ignorance, as well as indifference, on the part of the public hinders the health administration, and to create active interest in sanitation and preventive medicine should be the aim of all health workers. Being deficient in knowledge of sanitation and unwilling to acknowledge its benefits, the members of local boards often become obstructionists to public-health measures. The stimulus of a fee might induce better attendance at board meetings and create better interest. Many boards are so inefficient that it is believed in some cases that a single health commissioner with full authority in matters affecting the public health would be more effective.

A uniform system for all third-class cities should be enacted by the legislature, with a per capita rate of 50 to 75c for public health provided by law. The health commissioner of a third-class city should give full time, receive not less than $3,000 a year and expenses, and have power to appoint necessary assistants. His term of office should not be less than five years.

To illustrate how ignorance may be the cause of many deaths, it was the belief in one community that measles cannot be effectively controlled, and that sooner or later every one must have the disease. In this locality there were twenty-two deaths from this cause which might have been prevented. In one instance where a health officer was vigilant, an epidemic of measles was prevented, though it was carried to his district seven different times within a year. If measles produced the fear that hydrophobia and smallpox do, they would rarely be seen and epidemics would never occur. Considerable inefficiency in health control work is due to failure of physicians to live up to the rules of the sanitary code, but often failure to report communicable diseases when no physician is in attendance is the cause of the spread of these diseases.

Insufficient funds for proper conduct of health affairs may be the cause of inefficiency in one municipality, while in another

it may arise from deficient help. There are many causes, but the greatest is lack of interest by health officials. In a sense, many health officers are merely accidents of our political system, appointed without regard to qualifications.—A. M. Hall, M. D., Fulton, N. Y., *Journal of the American Medical Association,* March 11, 1922, Vol. 78, pp. 726-728.

✣

The Philosophy of Occupation Therapy.—Based upon his personal experience, the author shows the value of work as a sovereign help in the problem of adaptation, and shows that the culminating feature of evolution is man's capacity of imagination and a use of time with foresight, based on a corresponding appreciation of past and present.

Many formidable diseases are largely problems of adaptation. The whole of human organization has its shape in a kind of rhythm, and it is necessary that our organism be attuned to all of the rhythms, such as night, day, hunger and its gratification, work, play, rest and sleep, and be able to attain balance even under difficulty. Thus, the twenty-four hours of the day are the problem of nursing and the immediate therapy, and the employment of time has become an important measure and problem for the physician and nurse.

It is the use we make of ourselves that gives the ultimate stamp to our every organ, rather than our mere good-will and good intention. Hence, in mental diseases it becomes the task to obtain performance wherever it fails to come spontaneously. Hence, too, the preëminent rôle of the nurse and the director of occupation and recreation in the treatment of all conditions where the mental factors play a rôle.—Adolph Meyer. *Archives of Occupational Therapy,* Vol. 1, No. 1, February, 1922.

✣

The Division of School Hygiene.—This Division was created in the United States Bureau of Education of the Interior Department by an order of the Commissioner of Education, P. P. Claxton, date October 19, 1912. This order was made possbile by the provision in the Appropriation Act of 1911-12. The scope and purposes of this Division are:

1. To furnish to all who seek it information regarding the sanitary construction of school buildings.
2. To bring together at the Bureau information relating to school hygiene and sanitation and to render this information accessible to school authorities and all others interested.
3. To gather and prepare for publication information concerning the hygienic condition of school buildings and grounds throughout the country.
4. To conduct all correspondence referred to it wherein advice and information are sought on matters of school hygiene and school sanitation.
5. To prepare bulletins on such special topics as the commissioner may from time to time direct.
6. To direct such coöperative investigations as shall be made in connection with the Bureau on matters relating to the hygiene of the school children.
7. To compile and send out bibliographies on special topics in school hygiene, school sanitation, and medical inspection.
8. To assist in any work connected with the Bureau which the commissioner may see fit to assign to the Division.

The work undertaken consisted of answering correspondence (in one year there were 11,475 letters received), giving out information, preparing exhibits, the preparation for lending purposes of cardboard models of three types of school houses, helping the survey of rural schools, sending out bulletins on open-air schools, etc. An annual conference on physical education has been held under the auspices of the Division. For several years, beginning in the late fall of 1918, the Bureau has had the active assistance of the Child Health Organization of America.

There is now pending before Congress a bill which would greatly increase the scope of the work of the Bureau of Education, probably through this Division. The purpose of the bill (the so-called Fess-Capper Physical Education Bill) is to provide for the promotion of physical education in the United States through coöperation with the states in the preparation and payment of supervisors and teachers of physical education, including health supervisors and school nurses. An appropriation would be made the United States Public Health Service to carry out research and demonstration work.

The total appropriations to the Division

of School Hygiene, through the Bureau of Education, have never been large, and the largest personnel was in 1919 when there were five members of the staff including two special collaborators not paid out of Bureau funds. The Division has always attempted to coöperate with other organizations interested in school sanitation, physical education, educational hygiene and general health education.—Report of the National Health Council, by James A. Tobey, *School and Society,* March 25, 1922, Vol. XV, No. 378.

✣

The Food Research Institute of Stanford University, which grew out of a suggestion by Herbert Hoover, and was founded in February, 1921, by the Carnegie Corporation of New York in conjunction with the trustees of Leland Stanford Junior University, is organized for the purpose of intensive scientific study of food production, distribution, and consumption.

The following directors were appointed in April, 1921: Carl L. Alsberg, M. D., Joseph S. Davis, Ph. D., and Alonzo E. Taylor, M. D. An advisory committee was also appointed.

During the Great War it was first realized that it was important for governments to have information regarding food production, distribution, nutrition and dietetics. In the crisis it was found that the necessary statistics were not available without extensive work in collection. The founders of the Institute are convinced that scientific study of these problems is important in peace as well as war time, and that while government research will continue, the work of a non-governmental organization with university affiliations could be of advantage without the limitations which apply to these agencies.

In the course of its activity the Institute will concern itself with such subjects as the food elements in actual and normal standards of living, physiological and social aspects of sub-nutrition, as well as the production and marketing of foodstuffs. It will be the policy of the Institute to avoid overlapping of the work of established research organizations, public or private, and to enlist the aid of such organizations in the prosecution of researches. In fact, it is the hope that methods developed by the Institute may be utilized by other agencies in similar investigations.

The work will be done mostly at the University. The Institute is organized as an integral part of the University with the status of a department, for the purpose of directing research and recommending degrees. For the year 1922-23 it has established four fellowships for graduate study in the field of food research.

The first year has been largely occupied with the establishment at Stanford, the determination of general policies, the organization of a small staff, the collection of data which will be required for research, etc., but the work is expected to be well under way by the autumn of 1922.

The results of researches will be published through established technical journals, or when this is undesirable, in a series of publications to be issued by the Food Research Institute.—Statement by Stanford University, California, March 20, 1922.

✣

Intravenous Use of Quinine in Malaria.—When quinine is given intravenously by routine in malaria treatment it can hardly be claimed that the procedure is without danger. The sudden introduction of a concentrated solution into the blood stream tends to cause circulatory depression and distressing nervous phenomena. Accidental extravasation into the tissues at the point of injection is apt to cause local necrosis and sloughing. Against these dangers is the unquestionable rapidity with which the drug is brought into contact with the parasites in the blood stream. Except for this there is no clear evidence at present that in ordinary malaria infections the method is more effective than mouth administration in curing an acute attack, in ridding the blood of sexual forms, or in preventing relapse.

Its proper field of usefulness seems to be upon urgent clinical indications of two sorts: first, in cases in which prompt absorption by the gastro-intestinal tract, following mouth administration, is not to be expected because of violent gastro-intestinal disturbance or other cause, or in which it is impossible to give the drug by mouth on account of delirium, coma, etc.; and second, in cases which are gravely ill when first seen by the physician and in whom it is deemed imperative to secure immediate synchonization. It does not seem necessary nor desirable to use the intravenous route of administration in the simple acute or chronic infections or-

dinarily encountered, whether tertian or æstivo-autumnal.

When the clinician decides that the method is warranted, the effect upon the patient must be borne in mind. Particularly is it necessary to be sure that the patient is not already suffering from circulatory embarrassment. The technique of the injection must be such as to minimize the danger of untoward effects by observing three cardinal principles: careful aseptic technique; giving the drug in moderate doses and in dilution; and introducing the solution slowly.

All the precautions which are observed in giving a dose of salvarsan should be observed in giving quinine.—Dr. K. F. Maxcy, *U. S. Public Health Service Health News.*

✠

Good Water Polluted by Bad Handling.—Certified water of satisfactory quality may be so handled in its delivery and storage aboard a vessel as to render it unsafe for consumption. On the Ohio and Mississippi Rivers, for instance, in many places drinking water is carried in pails, barrels and kegs, where there are no hydrants at the docks, with the result that water otherwise perfectly good becomes contaminated and impure. There should be hydrants on or near all wharves carrying public water supplies, so that a hose may be attached and water carried directly on board boats. The hose should be carefully protected from contamination from the river water and other sources, and used for no other purpose. Where the river level is subject to marked changes a water pipe could be run down the incline of the landing; city hydrants, properly protected, should be placed on it at about each 15 feet of vertical rise in the landing. Preliminary steps are now being taken to do this at Louisville, Cincinnati, Evansville, Huntington, and Pittsburgh.

✠

Sanitation in Public Buildings as a Health Factor.—Sanitary surroundings largely determine the healthfulness of a locality, and the public buildings of a community are important factors in determining the well-being of its people. Since practically all children between the ages of 7 and 14 attend school, it is a public duty to secure surroundings that are conducive to their well-being physically, mentally and morally. Sunshine, fresh air, pure drinking water, cleanliness, proper toilet-room facilities, and good sewerage are all essential.

A hotel is often the measure by which a whole town is judged. Hotel sanitation is a problem that the health authorities must handle, but the citizens of every city should agitate it until any necessary reforms are brought about. There must be rigid enforcement of the laws of sanitation, which are, after all, the laws of common sense and of common cleanliness.

Hospitals, too, offer problems in municipal sanitation. Absolute cleanliness is one of the prime requisites here. Court houses and jails are nearly always unsanitary, and are often remarkable for their filthiness. The remedies are obvious.

Civic pride is a great aid to the healthfulness of a community, and if public buildings are not sanitary they can be neither healthful nor beautiful. Coöperation of citizens in the clean-up of such buildings is all that is necessary.—Manton M. Carrick, M. D., *The Nation's Health,* Vol. IV, No. 2, February, 1922.

✠

Dr. Hoffman Goes to Babson's.—Dr. Frederick L. Hoffman, third vice-president and statistician of the Prudential Insurance Company, has become dean of the Graduate School of Business Administration at Babson Institute, Wellesley Hills, Mass. He will take up his new work May 1, but will retain his connections with the Prudential. The Graduate School of Business Administration is a new feature of the Babson Institute, and the first of a series of new buildings to house it will be ready in the fall. The teaching methods will be highly individualized to fit young men for executive responsibilities in the conduct of large corporation undertakings. Dr. Hoffman has recently returned from South America where he made extensive investigations into tropical mortality.

✠

Lengthening Life through Insurance Health Work.—At the end of thirteen years of effort to lengthen the lives of its industrial policy-holders, whose mortality had previously been uniformly higher than in the general population, the Metropolitan Life Insurance Company is able to announce a gratifying improvement in its mortality experience. This has been accomplished by

four main lines of work: education of policy-holders in personal hygiene by the distribution of 238,877,506 pamphlets; organizing a visiting nursing service to care for policy-holders when ill, which has made a total of 13,802,906 visits; an industrial service bureau to coöperate with employers in improving working conditions; and coöperation with health and other officials in securing legislation and appropriations.

Omitting the peak year of the influenza epidemic in 1918, which affected adversely the majority of other specific death-rates, the graphs shown by the Metropolitan, trended by straight lines for the period 1911-1921, show a downward tendency in the Metropolitan experience exceeding that of the United States Registration Area for all causes of death, mortality of children (1 to 14 years), tuberculosis (all forms), diseases of the heart, chronic nephritis, accidents, typhoid fever, and puerperal septicemia. Only the curves for influenza and pneumonia, cancer, and all diseases and conditions of the puerperal state show increases, and in these the Metropolitan upward tendency is less than that of the Registration Area.

✠

Medical Journals Consolidated.—The final issue of the *Medical Record* as a separate publication appeared on April 22 and announcement was made that the *Medical Record* had been sold to, and combined with, the *New York Medical Journal,* which appears semi-monthly.

Throughout the fifty-six years of its service to the profession, the *Medical Record* has had the same publishers and but two editors. Dr. George F. Shrady guided its course for the first thirty-eight years and was succeeded by his assistant, Dr. Thomas L. Stedman, who has long been dean of American medical editors, and widely esteemed.

Many of the most important discoveries and developments in the progress of preventive medicine were first announced to the American profession by the *Medical Record.* These include Lister's method of antisepsis; Koch's discovery of the tubercle bacillus and that of tuberculin; the employment of cocaine in eye surgery; the Roentgen rays; the discovery of the antitoxin of tetanus and that of diphtheria; Madame Curie's discovery of radium and many others.

The Germicidal Influence of Sunlight.—That the rays of the sun are active in the destruction of germs is no new idea. This is why animal life is possible in the tropics, where germs grow with such rapidity that were it not for the great activity of the intense sunlight they would soon overwhelm everything. Recent experiments made by Laroquette, at Algiers, indicate that the luminous rays of the sun, that is, ordinary white sunlight, do much more to destroy germs than any individual group of rays. The so-called violet rays, formerly supposed to be the most active, are now known to be less active than the luminous ray.—*Good Health,* October, 1921. p. 444.

✠

Finnish Child Welfare League.—"General Mannerheim's League for Child Welfare" is the title of a Finnish organization founded in 1920 by the former regent of Finland. It is national in scope and aims "by the promotion of voluntary effort in the sphere of child welfare to foster the healthy development, bodily and mentally, of the coming race, in so far as the work is not undertaken by state or local authorities or by special enactments."

Its membership already includes more than 12,000 individuals, while over 30 already existing local or national societies have been admitted as sections. The League is working on three main lines of action: hygienic, moral, and informative. It contemplates the establishment of maternity and child welfare centers, courses for nurses and midwives, recreation clubs, day homes, a central library and information bureau. Although it has as yet no large positive results to show, great interest has been shown in its projects among all classes, and it is expected to do a great and beneficial work for Finland.

✠

Hygiene in the Arctic Regions.—Vilhjalmur Stefansson, in the *Journal of the American Medical Association,* makes special reference to the early age of maturity in the Eskimos, in contradiction to the generally accepted idea that peoples in tropic climates mature sooner. This he ascribes to the fact that the Eskimo houses are kept up to a temperature of 100°, or nearly that, during the whole winter, so that the people never feel the extreme cold on their bodies, being kept constantly heated so that they perspire

freely. When they go out of their houses they are protected by several layers of fur clothing, and the face is the only part of their anatomy exposed.

Women generally mature to child-bearing age at 10 to 13 years. Sometimes they stay indoors the whole winter through, and so are in the same position physically as the women of Italy or any southern country. To all intents and purposes the typical Eskimo lives under tropical or subtropical conditions, and it matters not what the temperature may be out of doors.—*Good Health*, December, 1921, Pp. 513-514.

✣

Far-sighted Economy.—The administration, in England and Wales, while pursuing a program of economy, has spared the bough on which the babies' cradle rests. Navy, Army, Air Forces, Police, and even Education, will have to satisfy Parliament, if they can, that the economies suggested are unjustified, but the appropriations for maternity and child welfare services continue undiminished. Under the presidency of Lord Astor, a public conference was held which passed a resolution to the following effect:—

"That in view of the fact that national expenditure on public health (apart from housing) is relatively small, while the actual results in the saving of life—in increased longevity and in improved physical capacity —are by comparison very large, and that money spent on public health has proved itself to be the highest form of economy: this conference, while recognizing that normal expansion must under existing circumstances be postponed, urges the government to avoid curtailment in national expenditure on public health."

The coming generation in Great Britain will not have to look back to 1922 and say, "That was the year when our fathers and mothers decided to save at our expense."—*Maternity and Child Welfare*, March, 1922. *(H. N. C.)*

✣

Physical Education Conference.—The fifth National Conference on Physical Education, held in Chicago February 28, was conducted as a joint affair with the National Council of State Departments of Education, of the National Education Association. About three hundred people were present. These conferences have come to serve the purpose of bringing to the attention of the superintendents of education the importance and significance of physical education.

✣

National Health Council Issues Report on Health Section of U. S. Bureau of Indian Affairs.—In accordance with its policy of making available to sanitarians and others impartial information on the health activities of the United States Government, the National Health Council has issued a mimeographed report on the Health Section of the U. S. Bureau of Indian Affairs. This report presents to the public for the first time a description of the important government health work among Indians. The report is the sixth of a series planned by the Council, others already published having included:

Division of Vital Statistics, U. S. Bureau of the Census.

Children's Bureau, U. S. Department of Labor.

Women's Bureau, U. S. Department of Labor.

Division of School Hygiene, U. S. Bureau of Education.

General Report of the Government Health Activities (with chart).

About a thousand copies of these five reports have already been distributed in response to special requests. A statement concerning the Division of Welfare of the Post Office Department is now in preparation. The Council calls attention to the fact that outlines of the U. S. Public Health Service and of the U. S. Bureau of Chemistry are contained in pamphlets issued by these bureaus as Reprint No. 661 from the *Public Health Reports* and Department Circular No. 137 of the Department of Agriculture, respectively. The Council does not believe that duplication of the pamphlets is necessary.

Copies of the report on the Bureau of Indian Affairs or of any of the other reports may be obtained without charge from the Washington Office of the Council, 411 Eighteenth Street, N. W., Washington, D. C.

✣

Engineering Work Reduces Mortality—Typhoid Fever Death Rate in New York State 1885-1919.—In discussing the typhoid fever death-rate for the state of New York for the period 1885 to 1919, Horton graphically emphasizes the wide variation in this rate from year to year up to 1907 and the

rather uniform decline in the curve since that year. In 1906 the Sanitary Engineering Division was established in the State Depart of Health, prior to which date there was no systematic supervision over the water supplies of the state. Horton divides this curve in two portions, 1885 to 1907 and 1907 to 1919. The average typhoid fever death-rate for the earlier period was 23.0 and for the later one 10.7 per 100,000. The 1919 rate was 3.3. As compared with the earlier period, the decline since 1907 corresponds to a saving of some 7,000 lives in 12 years.

As typhoid immunization by vaccination was resorted to only to a limited extent and milk and other food epidemics of typhoid fever were few during the 1907 to 1919 period, Horton states that the circumstantial evidence is due primarily to the engineering work of supervision of public water supplies. Tables are included giving information concerning the water supply and the typhoid fever death-rates in New York cities before and after improvements were made in the public water supplies.

✣

Value of Engineering Service in Public Health.—In attempting to use mortality rates to measure the effect of any engineering activity, two points should be borne in mind: (1) that there may be other sources or agents of infection responsible for the particular disease whose mortality rates are being compared than those directly associated with the particular engineering activity in question; (2) that in addition to the preventive measures carried on through any particular engineering activity, there may have been other corrective measures taken, such as immunization and medical treatment. In conclusion, Horton feels "that as a higher efficiency is attained in methods of diagnosis and in the reporting and recording of vital statistics, a truer and more accurate index will be furnished of the influence which sanitary engineering activities exert in reducing the general death-rate, and a greater appreciation given to the value of engineering services generally in the field of public-health work." Theodore Horton, Chief Engineer, New York State Department of Health. Transactions of the First Annual Conference of State Sanitary Engineers, *P. H. Bulletin*, No. 120 p, 5-15.

J. A. T.

Using Cattle to Prevent Malaria.—A writer in the *Indian Medical Gazette* for January, 1922, states that he believes that the vast majority of anophelines never feed on human beings, practically only those wishing to lay eggs and the newly hatched feeding on human beings. He believes according to his Indian experience that anopheline mosquitoes prefer cattle as feeding hosts to human beings and that the placing of cowsheds in a ring on the outskirts of a village in India with dwelling houses in the center will result in greater freedom to the inhabitants from mosquito infestation. J. A. T.

✣

Mortality from Typhoid Fever, 1920.—The mortality rate from typhoid fever reached its lowest point in 1920. In that year, in the registration area it was only 7.8 per 100,000 population, a decrease of 2.2 per 100,000 over 1919 and of 5.5 over 1916. The death-rate from this disease has been decreasing steadily for the last decade. The two states having the lowest rate in the registration area were Massachusetts and Wisconsin, with 2.5 per 100,000. The highest rate, 22.4, was in South Carolina. Of 33 states, only 9 show higher rates in 1920 than in 1919.—*U. S. Public Health Reports*, April 14, 1922.

(J. A. T.)

✣

Appraising the Sanitary Quality of a Water Supply.—The presence of pathogenic organisms in water cannot be reliably determined by a nalysis. *B. Coli* and *B. Welchii* can be detected in water, but there are no ready methods of accurately determining the number present; and those derived from human excreta cannot be distinguished from those from animals or birds. The bacilli of typhoid fever and other known water-borne diseases do not multiply in water, but decrease at an almost constant percentage rate, varying with the temperature and light and with the substances present in water. The rate of decrease is usually lower in the winter than in the summer, and under average conditions may be considered as about 20 per cent per day.

The probable age of pollution of a water, according to the author, can be determined quite as well by inspection and by hydraulic methods as by analysis. The reason given for this is that the four tests for nitrogen are considerably interfered with by growths of algæ in surface waters, and by bacterial

reduction of nitrite in ground water.—G. C. Whipple, Canadian Engineer, Feb. 28, 1922. *Public Health Engineering Abstracts,* April 8, 1922. J. A. T.

✣

Ship Sanitation and First Aid for Seamen.—The Secretary of Commerce has recently approved an amendment to the general rules and regulations prescribed by the Board of Supervising Inspectors, which requires that no candidate for original license as master, mate, pilot, or engineer shall be examined unless he has completed a course of instruction in "first aid" approved by the United State Public Health Service and has passed an oral examination based on a Manual on Ship Sanitation and First Aid recently prepared by the Public Health Service in coöperation with the Seamen's Church Institute, of New York City.

The manual is intended primarily to furnish officers and men of the American merchant marine a simple but comprehensive textbook on ship sanitation and hygiene, an outline of surgical conditions that obtain on shipboard, and fundamental information regarding the treatment of disease. The information contained in the manual will be of greatest value to officers and men of vessels that do not carry a ship's doctor and lack facilities for the care of the sick and injured.—*Public Health Reports,* March 31, 1922. J. A. T.

✣

Sewage and Sewerage of Farm Homes.—The Bureau of Public Roads of the United States Department of Agriculture has issued a 55-page pamphlet on this subject, dated January, 1922. (*Farmers Bulletin* No. 1227.) It outlines the dangers from sewage borne diseases and describes sanitary privies, chemical closets, septic tanks, grease traps and sewerage systems. Illustrations and diagrams show details of construction. J. A. T.

✣

Summer Courses in Public Health.—The Massachusetts Institute of Technology offers summer instruction during the months of June, July, August and September in Engineering, Architecture, Chemistry, Biology and Public Health, Mathematics, Physics, General Studies, Entrance Subjects, etc. Through its Department of Biology and Public Health, the Institute is this year expanding still further its summer instruction in Public Health and Health Education.

For those desiring to become laboratory technicians and as preparation for more advanced studies in the public-health field, technical training in bacteriology and public-health laboratory methods is offered. The courses to be given are as follows:

1. Methods of Teaching Hygiene and Public Health in the Public Schools. Prof. C. E. Turner.
2. Personal Hygiene and Nutrition. Prof. John W. M. Bunker.
3. Sanitary Science and Public Health. Prof. S. C. Prescott, Prof. C. E. Turner.
4. Elementary Bacteriology: A Consideration of the Role of Micro-Organisms in Every-Day Life. Prof. John W. M. Bunker, Dr. M. P. Horwood.
5. Bacteriology. Dr. M. P. Horwood.
6. Public Health Laboratory Methods. Dr. Francis H. Slack.

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LEGISLATION—FEDERAL

(From bi-weekly reports of the National Health Council, March 17-April 14, 1921.)

PROGRESS ON MATTERS PREVIOUSLY CONSIDERED

H. R. 10864. Increased Hospital Facilities for Disabled Veterans.—Passed Senate, April 14. This bill, which appropriates $17,000,000 for additional hospital facilities, passed the House of Representatives March 31, 1922. The measure was adopted practically as it was reported by Chairman Langley of the Committee on Public Buildings and Grounds, with the exception of one amendment giving authority for the purchase by the government of any hospitals or institutions which belong to private individuals or corporations now caring for disabled ex-service men. On April 5, Senator Culberson of Texas presented an amendment to the bill, providing that suitable and comfortable clothing shall be given patients in all hospitals if they have not the financial means to supply their own.

H. R. 10559. Commerce and Labor (Children's Bureau).—This bill was signed by the Vice-president and by the Speaker of the House on March 22. As finally passed, the increase from $80,000 to $120,000 for the investigation of matters pertaining to the welfare of children and infant mortality was retained. The provision that not to exceed twelve persons shall be employed at the rate

of compensation of $2,000 each per annum and above that sum, is contained in the bill. Salaries under the appropriation clause for the carrying out of the Federal Maternity and Infancy Act are restricted to one at $3,600, one at $3,500, one at $3,000 and the remainder not to exceed $2,000.

H. R. 10663. Second Deficiency (Children's Bureau).—The President signed this bill on March 20. The bill carries an item of $490,000 for the Children's Bureau to carry out the provisions of the Federal Maternity and Infancy Act. Thirty-six states have now accepted the terms of this act; eight by action of the legislature, the remainder by proclamation of the governor.

H. R. 10329. Interior Department.—Included in the appropriations for the Department of the Interior are a number of items of interest to sanitarians. To the Bureau of Indian Affairs, $370,000 is allotted for the relief and care of destitute Indians and for the prevention and treatment of tuberculosis, trachoma, smallpox, and other contagious diseases. An appropriation of $50,000 is made for investigation of rural and industrial education, physical education, and school hygiene. A proviso requires that no salaries for this purpose shall be paid in excess of $3,500 per annum.

H. R. 10871. War Department. — Reported from the Committee on Appropriations, March 13. House began consideration of measure March 14, 1922. It reduces the strength of the enlisted personnel of the army from 150,000 to 115,000 and the commissioned officers from 17,000 to 11,000. Appropriations are carried for the medical department as follows:

Medical and Hospital Department	$1,000,000
Hospital Care, Canal Zone Garris'n	40,000
Army Medical Museum	7,000
Library, Surgeon General's Office	10,000
Office of Surgeon General	213,520

The bill also carries an item of $500,000 for sanitation and quarantine in the Canal Zone.

H. R. 10972; S. 3326. Salaries in the Army, Navy, and Public Health Service.—On March 21, 1922, Representative McKensie introduced this bill in the House, where it was referred to a special committee on adjustment of pay. In the Senate on March 22, 1922, a similar bill, S. 3326, was favorably reported by Senator Wadsworth, chairman of the Senate Committee on Military Affairs, and was placed upon the calendar.

S. 3300. Pension for Widow of General Gorgas.—On March 24, 1922, the Senate passed this bill, which provides for a pension of $150 a month for Marie Doughty Gorgas, widow of Major General William C. Gorgas, in special recognition of the eminent services of General Gorgas in the eradication of yellow fever from Cuba and Panama.

S. 3322, S. 3278. To Erect Building for Care of Tuberculous Pupils of District of Columbia Schools.—Both of these bills appropriate $150,000 and authorize the Commissioners of the District to erect a building to be used for the care of tuberculous pupils on a site to consist of ground already owned by the Government.

S. 1010. Punishment for Prostitution. Favorably reported from the House Committee on the Judiciary. Without amendments, the House Committee on the Judiciary has recommended the adoption of this measure which passed the Senate last February. It is an amendment to the revised statutes of the United States. It would give federal trial judges the authority to sentence a girl convicted of lewdness, prostitution, or similar offenses, to a state reformatory to be designated by the Attorney General instead of a federal prison. Previous offenders, however, are not subject to this leniency.

H. R. 10730. Agriculture Department.—This bill, which had passed the House on March 13, was favorably reported in the Senate on April 3. On April 12 the Senate agreed to an amendment increasing the appropriation for the prevention of tuberculosis in animals from $2,578,800 to $2,877,600.

H. R. 4. Revision of the Pension Laws; Provisions for Nurses. Favorably reported to the Senate by the Committee on Pensions. This measure, which passed the House on February 1, 1922, provides a pension for army nurses who served during the war with Spain and members of the Nurse Corps who served in that corps between the beginning of the war and February 2, 1901.

H. R. 10941. Post Office Cancellation Stamps for Health Expositions. Passed the House, April 3, 1922. The first of these bills passed the Senate, April 10. It permits the Indianapolis Post Office to use a special

cancelling stamp entitled "Indiana Health Exposition, May 19-27, 1922. Indianapolis, Indiana." It also allows a "Pageant of Progress Exposition, Chicago, July 29 to August 14, 1922" cancelling stamp by the Chicago post office. By the terms of this bill the Post Master General could give permission for special cancelling stamps for any health exposition not conducted for private gain or profit, which did not last more than six months.

H. R. 10926, S. 3347. To Provide Medical and Surgical Treatment for Persons Serving in Any War of the United States. Now in committee. These measures provide that any person who served in any war of the United States who may be suffering from the effects of any wounds, injuries, or sickness incident to service, shall be entitled to receive medical, surgical and hospital service, and supplies from the Army, Navy, or Public Health Service free of charge.

H. Res. 306. Investigation of Affairs of U. S. Veterans' Bureau. Introduced by Representative Larson of Georgia, March 17, 1922. Referred to the Committee on Rules. This resolution provides for the appointment of a select committee of seven members of the House to conduct an investigation into the conditions and operations of the U. S. Veterans' Bureau. The investigating committee is also directed to investigate whether an increase in personnel of the U. S. Public Health Service has been necessitated by its work in handling patients and disabled war veterans.

NEW LEGISLATION

H. R. 11021. Prevention of Venereal Diseases in the District of Columbia. Introduced by Representative Gilbert, March 23, 1922. This measure deals with many phases of the detection, prevention, and treatment of cases of syphilis, gonorrhea, and chancroid. Its provisions in brief follow:

(a) The chief administrative officer of every penal institution shall report all cases of venereal disease to the health officers.

(b) The judges of the juvenile court and courts of criminal jurisdiction shall report to the health officer all cases of persons brought before them for trial.

(c) The health officer and his authorized representatives shall use every available means to ascertain existence of all cases of venereal diseases.

(d) The health officer or some physician authorized to practice medicine, shall make examinations of persons believed to be afflicted. Examination, however, shall not be made without the consent of persons, except:

(e) That in cases where suspected persons refuse consent to examination the health officer shall file affidavit before any judge of police court or court having criminal jurisdiction, and the court shall thereafter order such persons to appear for examination before the health officer.

(f) Prostitutes and all persons convicted of sexual crimes are presumed to be a source of infection and subject to examination.

(g) The health officer may order infected persons into quarantine, violation of the quarantine to be unlawful.

(h) Advertising of any remedy for treatment, cure, or prevention of syphilis, gonorrhea or chancroid is made illegal, and the sale of such remedies shall be only by prescription.

(i) Physicians must report all cases within ten days, but report shall be for statistical purposes only and shall not disclose identity of persons under treatment. The physician must isolate his patient and instruct him how to prevent spread of the disease.

(j) Persons having venereal diseases shall not work as barbers, dentists, or food handlers.

(k) The penalty for violation is $100 for first offense; $300 or imprisonment for not exceeding sixty days, or both, for subsequent offenses.

The bill was favorably reported by the Committee on the District of Columbia, March 31, 1922. Only a few minor changes were made by the Committee. In its report presenting the bill to the House, these remarks appear:

"The prevalence of venereal diseases among the people of the United States is viewed with alarm, especially in medical and military circles. Hearings were had by the subcommittee that drafted this bill and many of the laws of different states were carefully considered. The committee also had the benefit of the presence of Dr. McCormack, who is chairman of the State Board of

Health of Kentucky and who has made investigations of these laws in Kentucky and other states, and especially was qualified to advise the committee by reason of the fact that he had, as an army officer, under his especial charge the cleaning up of a horrid situation during the war, in Panama, where this affliction among some classes was almost universal. The committee has not gone as far in this bill as the several states have gone and as desired by the Health Board of the District of Columbia, but it is the opinion of the committee that this bill preserves to a greater extent the individual liberties of the citizens than any other bill either presented to this Congress or enacted in the several states. It was the unanimous opinion of all doctors that these diseases more than any others require treatment, and that improper treatment is harmful, and it is provided that the advertisement and sale of medicine for their alleviation or cure is prohibited except upon the written prescription of a regular practicing physician."

S. 3337. Regulation of Cold Storage. Introduced by Mr. Norris, March 25, 1922. Referred to Committee on Agriculture and Forestry. The bill makes it unlawful for any person (1) to ship or deliver for shipment in commerce, (2) hold in cold storage while in commerce, (3) sell or offer for sale in original unbroken packages food that has been in cold storage and shipped in commerce, unless such products are plainly and conspicuously marked "Cold Storage," and in addition show the dates when put in and taken out of storage and the name and location of all warehouses in which so stored. Articles placed in cold storage and held there less than thirty days would not have to be marked. It is also made unlawful to ship, sell, or hold in storage in commerce goods which have been in cold storage for longer than twelve months. The administration of the bill would be entrusted to the Secretary of Agriculture who would also make regulations for its enforcement and provide the necessary employees.

H. R. 297—H. R. 10956. Prevention of Contamination and Pollution of Navigable Waters. Now in committee. Requests and authorizes the President to call a conference of maritime nations to consider effective means to prevent the dumping on the high seas of oil waste, fuel oil, oil sludge, oil slop, tar residue and other polluting substances.

H. R. 11040. Hospital at Cleveland, Ohio. Introduced by Mr. Norton, March 24, 1922. Referred to Committee on Public Buildings and Grounds. This bill provides for the sale of the United States Marine Hospital at Cleveland and the purchase of a site and erection of a new structure.

H. R. 11264. Medical Service for the Lighthouse Service. Introduced by Mr. Winslow, April 11, 1922. Referred to the Committee on Interstate and Foreign Commerce. This bill authorizes the Public Health Service to furnish medical, surgical and hospital care to the officers and men of the Lighthouse Service.

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LEGISLATION—STATE

(From bi-weekly reports of the United States Public Health Service with the coöperation of the National Health Council, April, 1922.)

Since all the state legislatures which have been holding sessions have adjourned except those of Massachusetts and Rhode Island, this bulletin will be the last one issued during this year.

General

The States and the Federal Maternity Act

In Bulletin No. 1 (issued February 1, 1922) we reported that 25 states had accepted the provisions of the federal Act for the Promotion of the Welfare and Hygiene of Maternity and Infancy. Information from the United States Children's Bureau shows that now 36 states have signified their acceptance of the provisions of the Act. In eight of these states, the acceptance was by an act of the legislature and in the remainder, through proclamation of the governor. The states which have not yet accepted the Act are: California, Louisiana, Maine, Maryland, Massachusetts, Washington, Mississippi, Nevada, New York, Rhode Island and Tennessee. Massachusetts, whose legislature is now in session, definitely turned it down. In New York, while the federal maternity aid was rejected, both houses passed on March 17 a bill which provides $130,000 for the protection of the health of mothers, infants, and children. The State Department of Health would be charged with the administration of the Act, through a Division of Maternity, Infancy

and Child Hygiene. Kentucky, South Carolina, Virginia and New Jersey have accepted the Act during the recent sessions of their legislatures.

Kentucky

1. Child Welfare. H. 228. Creating a child welfare commission. Passed House March 2.

2. Chiropractic. H. 251. Providing for State Board of Examiners and licensing of chiropractors. Passed House, February 11.

3. Hospitals. S. 234. Appropriating $40,000 to procure land for site of Federal sanatorium. Passed House March 14.

4. Medical Practice. H. 307. Allowing a person holding a certificate to teach to enter medical college without further examination. Passed House March 11.

5. Tuberculosis. S. 72. Allowing issuance of bonds to provide tuberculosis hospitals. Passed Senate February 10; passed House March 14.

6. Vital Statistics. S. 37. Passed Senate January 25; House March 17.

H. 16. Passed House, January 31.

Maryland

1. Child Hygiene. H. 72. Creating the bureau of child hygiene in the State Health Department. Passed both houses. (A. J. P. H. April, 1922.)

2. County Health Officers. S. 51. Providing for appointment of full-time county health officers. Amended in the Senate and passed both houses.

3. Disease Control. S. 32. Relating to the control of communicable diseases by State Board of Health. Passed Senate March 7. Amended in House and passed.

4. Food and Drugs.

(a) S. 110. Relating to the licensing and inspection of bottlers of soft drinks. Amended in the Senate, and passed, and amended in the House and passed. (A. J. P. H., May, 1922.)

(b) S. 146. Relating to the enforcement of the drug laws by the State Health Department. Passed Senate, amended in the House and passed, but Senate failed to concur in the House amendments. (A. J. P. H., May, 1922.)

(c) H. 358. Permitting floating of oysters in fresh water for not more than 12 hours. Killed in House.

5. Maternity and Infancy. H. Res. 6. Accepting the provisions of the Sheppard-Towner Act. Passed both houses.

6. Midwives. S. 50. Relating to the practice of midwifery. Passed Senate and killed in the House. (A. J. P. H., May, 1922.)

7. Nurses:

(a) H. 144. Requiring the licensing of practical nurses. Passed both houses. (A. J. P. H., May, 1922.)

(b) H. 258. Crediting nurses for training received in schools of public health. Passed both houses. (A. J. P. H., May, 1922.)

8. Optometry:

(a) H. 339. Amending the Optometry Law. Passed both houses with amendments.

(b) H. 361. Amending Optometry Laws. To permit persons licensed in other states to practice in Maryland without regard to qualifications. Died in committee. (A. J. P. H., May, 1922.)

9. Osteopaths. H. 256. Extending the practice of persons licensed as osteopaths. Died in House committee. (A. J. P. H., May, 1922.)

10. Pharmacy. S. 147. To appoint an assistant food and drug commissioner. Senate adjourned with this bill on its third reading files. (A. J. P. H., May, 1922.)

11. Quarantine. H. 265. Authorizing physicians to quarantine until arrival of health officer. Passed both houses.

12. Tuberculosis. S. 33. (A. J. P. H., May, 1922.) Passed Senate, March 7.

13. Vivisection. H. 310. Prohibiting experiments on dogs. Killed in House.

Massachusetts

PROGRESS

1. Food and Drugs. The following have been given leave to withdraw, tabled or rejected:

S. 232. Candy. (A. J. P. H., May, 1922.)

S. 258. Druggists. (A. J. P. H., May, 1922.)

H. 124. Druggists.

H. 365. Liquors. (A. J. P. H., April, 1922.)

H. 559. Cold Storage.

H. 748. Marking of Foods. (A. J. P. H., April, 1922.)

2. Medical Practice. S. 292. (A. J. P. H., May, 1922.) Has been given leave to withdraw.

3. Mental Hygiene. H. 588. (A. J. P.

H., May, 1922). Has been given leave to withdraw.

4. Midwives. H. 423. (A. J. P. H., May, 1922.) Was favorably reported March 16.

5. Nurses. H. 1057. (A. J. P. H., May, 1922.) Has been given leave to withdraw.

6. School Hygiene:

(a) H. 101. Requiring examination of children returning to school after absence due to infectious disease. Signed by the Governor, March 7.

(b) H. 495. (A. J. P. H., March, 1922.) Requiring vaccination of children in private schools was favorably reported March 22, but has been defeated in the House.

7. Tuberculosis:

(a) H. 534. Requiring marking of cows which have been tuberculin tested, etc., has passed both House and Senate.

(b) H. 750. Special committee to investigate feasibility of hospital for nonpulmonary tuberculosis, was favorably reported March 21. H. 1454, a similar bill, was favorably reported on March 28.

Mississippi

1. Chiropractic. S. 358. To license chiropractors, passed the Senate. H. 413 passed the House. Several other bills were unfavorably reported.

2. Dentists. H. 336. Regulating practice of dentistry was signed by the Governor, March 25.

3. Medical Practice. H. 259. Revoking license for performing abortion or violating federal narcotic laws, passed House.

4. Mental Hygiene. H. 278 Making appropriation for the colony for feeble-minded, passed House.

5. Pharmacy. S. 53. Was approved March 30.

6. School Hygiene. A bill requiring sanitary privies at rural schools passed the Senate.

7. Venereal Diseases. H. 292. (A. J. P. H., May 1922.) Passed, but the appropriation was reduced from $20,000 to $16,000. Bills requiring pre-nuptial examinations (H. 341, H. 704), and prohibition of marriage of infected persons (H. 646, H. 647), were unfavorably reported, as was also a bill penalizing houses of prostitution (H. 819).

New Jersey

1. County Health. S. 65. (A. J. P. H., May, 1922.) Passed Senate February 21.

2. Food and Drugs. S. 14. Prohibiting adulteration of ice cream, has been signed by the Governor.

3. Tuberculosis:

(a) S. 66. Permitting counties of first class to operate and control the tuberculosis hospital and sanatorium through a committee of the Board of Freeholders. Passed Senate February 2, House March 1.

(b) S. 121. (A. J. P. H., May, 1922.) Passed Senate February 13, House February 28.

New York

The New York Legislature adjourned on March 17. Final reports as to the health bills passed have not yet been received.

PROGRESS

1. Children:

(a) Pr. S. 377. Giving justices of children's courts right to inspect institutions, has passed the Senate.

(b) S. I. 725. Requiring Boards of Education to supply food to pupils in schools of 500 or more pupils, passed the Senate.

2. Dentists. Pr. A. 781. Passed Senate and Assembly.

3. Foods and Drugs:

(a) Pr. A. 847. Repealing certain provisions in the health law about adulterated food and drinks, passed Senate and Assembly.

(b) A. I. 1060. Grading food and farm products has passed Senate and Assembly.

4. Medical Practice. Pr. S. 570. (A. J. P. H., May, 1922.) Passed Senate.

5. Municipal Health. Pr. S. 243. Regarding compensation of local health officers, passed Senate.

6. Pharmacy. S. I. 664. Regarding qualifications of pharmacists, has passed Senate.

7. Tuberculosis. Pr. A. 743. Providing for a pavilion for tuberculosis patients in the public general hospital of a county that does not have a county tuberculosis hospital. Passed Assembly. (A. J. P. H., May, 1922.)

8. Veterinary Medicine. S. I. 665. Regarding qualifications of veterinary surgeons. Passed Senate.

BILLS NOT PREVIOUSLY REPORTED

1. Coroners. Pr. S. 1536 and Pr. A. 1839. Requires coroner to be physician with at least three years' experience in actual practice.

2. Garbage. Pr. S. 1465; Pr. A. 1805. Makes regulations concerning transportation of garbage by barge to sea.

3. Mental Hygiene. Pr. S. 1716; Pr. A. 1907. Provides for commitment of insane veterans on request of U. S. Veterans' Bureau.

4. Midwives. Pr. S. 1340; Pr. A. 1996. Regarding the licensing and registration of midwives.

5. Tuberculosis:

(a) Pr. S. 1606. Requires thorough examination of all dairy cows in the state by means of the tuberculin test.

(b) Pr. S. 1731. Provides for disposition of tubercular carcasses and prohibits sale of such carcasses for human consumption unless disease is localized and carcass has been sterilized.

6. Water and Sewage:

(a) Pr. S. 1566; Pr. A. 1938. Gives State Commissioner of Health complete jurisdiction of water purification or treatment plants.

(b) Pr. S. 1565; Pr. A. 1939. Outlines qualifications of superintendents or operators in charge of plants for water purification.

The following bills have been signed by the Governor and are now laws:

Pr. S. 692, amending the Farms and Markets Law generally, is Chapter 48; while the companion bill S. 796, amending the Penal Law re adulterated food is Chapter 122.

Pr. S. 1113, amending general municipal law, providing for occupational therapy departments in connection with public general hospitals is Chapter 161.

The three bills amending the public-health law re dentistry, veterinary medicine, and pharmacy are Chapters 178-179 and 183 respectively.

Pr. A. 1530, amending the public-health law re county mosquito extermination is Chapter 196.

Pr. A. 307, providing that city health commissioner appointed under Chapter 249 laws of 1921, shall not be removed except after public hearing is Chapter 197.

Pr. S. 1105, to amend the public-health law re practice of optometry. (Chapter 245.)

Pr. S. 1366, to amend the farms and market law re diseases of domestic animals. (Chapter 255.)

Pr. S. 1114, to amend the general municipal law re public general hospitals for care of the sick. (Chapter 265.)

Pr. A. 1756, amending the public-health law re practice of nursing. (Chapter 288.)

Pr. A. 1310, amending public-health law by repealing article 4 re adulteration of food and drugs.

Pr. S. 1179, Pr. S. 1369, Pr. S. 1181, amending farms and markets law re milk, skimmed milk and by-products

Pr. A. 1454, amending farms and markets law re grading of food and farm products.

Pr. A. 1429, amending farms and markets law re imitation butter, etc.

Pr. S. 1552, amending farms and markets law re heating skimmed milk, etc., before used for feeding.

Pr. S. 1831, amending public-health law re division of maternity, infancy, and child hygiene.

Pr. S. 1583, amending conservation law re water supplies.

Pr. S. 1671, amending public-health law re vital statistics.

Pr. S. 1734, amending the education law re compulsory education and physical examinations.

Pr. S. 1340, amending public-health law re licensing of midwives. (Chapter 501).

Rhode Island

1. Maternity. A second bill, H. 719, has been introduced to accept the terms of the Federal Maternity and Infancy Act.

2. Venereal Diseases. H. 852. Would appropriate $25,000 for the prevention and treatment of venereal diseases.

Virginia

The U. S. Children's Bureau reports that the following bills proposed by the Children's Code Commission of Virginia were passed by the General Assembly.

a. The bill providing for changing the name of the State Board of Charities and Corrections to State Board of Public Welfare, making that Board the State Board of Children's Guardians, creating within that board a children's bureau, and providing for the establishment of local boards of public welfare in each county of the state, was passed in substantially the form in which it was presented.

b. Juvenile Court Bills. The juvenile court procedure bill provides for chancery proceedings, instead of the old semi-criminal procedure, which has previously existed. A new bill extends the juvenile and domestic relation courts system to the counties of the state, giving these courts practically the

same jurisdiction now exercised by such courts in cities.

c. A group of bills providing for (a) public relief for children in their own homes to be administered by the local board of public welfare; (b) regulating child-placing and child-caring institutions and agencies; (c) regulating maternity hospitals; (d) regulating boarding houses and nurseries for children under six years of age. No state appropriation was made for the operation of the mother's aid law.

d. A new child labor bill, which is a decided improvement over the existing law, was adopted. It still retains, however, the exception permitting children between the ages of twelve and sixteen to work in fruit and vegetable canning factories during the summer vacation.

e. A new compulsory school attendance law requiring children between the ages of eight and fourteen to attend school.

A number of other minor measures were passed, making a total of eighteen out of twenty-eight bills.

1. Tuberculosis. H. 354. (A. J. P. H., May, 1922) has been signed by the Governor.

2. Venereal Disease. S. 335 (A. J. P. H., May, 1922) has been signed by the Governor.

3. Vital Statistics. H. 5 (A. J. P. H., May, 1922) has been signed by the Governor.

Canada

The following bills having been received from Canada, we are including brief abstracts of them to show tendencies in health legislation there:—

Alberta

1. Hospitals.

(a) No. 71. Amends the Municipal Hospitals Act. (No.2)

(b) No. 72. Amends the Hospitals Ordinance.

2. Medical Practice. No. 91. Amends the Medical Profession Act.

3. Public Health. No. 85. Amends the Public Health Act.

4. Venereal Diseases. No. 36. Amends the Venereal Diseases Prevention Act.

Manitoba

1. Child Welfare. No. 7. Creates a Department of Public Welfare with a Director of Child Welfare under it. The bill deals with juvenile courts, neglected children, illegitimacy, feeble-mindedness, handicapped and immigrant children, child welfare, organizations, etc.

2. Hospitals. No. 29. Amends Hospitals Aid Act.

Nova Scotia

1. Hospitals. No. 53. Amends law. Requires approval of plans by Governor in Council before construction; requires admission of tuberculous patients to hospitals.

2. Public Health. No. 68. Amends law in a number of particulars.

Ontario

1. Nurses. No. 152. Requires registration of nurses.

Quebec

1. Bureau of Health. No. 203. Would establish a provincial bureau of health, defining organization and duties.

2. Vital Statistics. No. 11. Amends law regarding statistics of deaths of foreigners.

STATE HEALTH NOTES

California

The city of Long Beach has fully established a public welfare department, in which provision is made for carrying on all school, county and private constructive and relief measures under one superintendent. This plan has operated so successfully during the six years prior to its official adoption by the city that the public was quite ready to take it over in its entirety. While the health department has to do with unwholesome conditions and disease, endangering the public at large, the welfare department has to do with social ignorance and error in their incipiency, with the intricacies and the secrecies of poverty, disease and crime. A very interesting article on this subject by Dr. G. Hardy Clark of Long Beach appeared in the JOURNAL in May, 1921.

✣

In order to distribute quickly and more extensively current information concerning the prevalence of communicable diseases, and in order to give public-health workers closer coöperation in the control of outbreaks of these diseases, the California State Board of Health is publishing the *Weekly Bulletin*, which takes the place of the

mimeographed *Public Health News*. The first number was issued February 18. The *Monthly Bulletin* is discontinued and in its place there will be issued a *Quarterly Bulletin* which will contain full statistical data and complete summaries and reports of the Board's activities.

Cuba

On January 30 there was formed in the city of Havana the "Sociedad Cubana de Gastro Enterologia," and on February 13 the following officers were elected: President, Dr. F. Grande Rossi; Vice-President, Dr. F. Torralbas; Secretary, Dr. F. Solano Ramos; Vice Secretary, Dr. Pedro Barillas. The object of the society is the promotion of scientfic study of the digestive organs and the wider diffusion of such knowledge among the profession and the public.

District of Columbia

Dr. Lewis A. Newfield, assistant health officer, District of Columbia, resigned on March 5, 1922, to resume private practice in Brooklyn, New York.

Col. James G. Cumming was appointed, March 6, 1922, as assistant health officer, coming directly from the Medical Reserve Corps, U. S. A., where he has been coöperating in the preparation of the Medical History of the war.

✣

A leaflet has been issued by the District Health Department warning automobile owners and mechanics against poisoning from the fumes of gasoline engine exhausts, and of the necessity of adequate ventilation in garages.

Florida

The State Board of Health recently consolidated the Bureau of Venereal Disease with several activities, heretofore carried on by other bureaus, in the Bureau of Communicable Disease, with Dr. George A. Dame as Director. Dr. Dame had previously served as director of the Bureau of Venereal Diseases. The divisions of the new bureau are: Field Service, consisting of the district health officers, Venereal Disease Control, County Health Work, and Epidemiology.

✣

The State Board of Health and the International Health Board coöperating have recently completed a hookworm survey of eight counties. The data collected will be turned over to the Bureau of Child Welfare of the State Board of Health for an active campaign of education and treatment.

✣

Dr. F. A. Brink, district health officer in West Florida, has been carrying out an active campaign against typhoid fever in Escambia County. Nearly five thousand inoculations have been made within the past three weeks.

✣

The Bureau of Communicable Disease is making through its division of field service brief surveys of each county covering about one hundred and fifty physical, sociological and sanitary questions that frequently arise in the administration of public-health activities in the state.

Captain W. H. Gillette, of the U. S. P. H. S., who has been detailed to the Bureau of Communicable Disease, Division of Venereal Disease Control, is carrying out an extensive program of lectures and motion pictures throughout the state on social hygiene.

✣

Under the auspices of the Florida Public Health Association an itinerant chest clinic was held recently in Ft. Pierce. The director of nursing service for the Association preceded the clinic by several days, visiting those who expected to attend the clinic. Dr. Louis Limbaugh, of Jacksonville, and Dr. T. A. Blinn, of the State Board of Health, were the examiners. This clinic was one of those supported by the sale of Christmas seals last December and the membership dues of the Florida Public Health Association. The State Board of Health is coöperating by furnishing an examiner.

✣

Jacksonville is preparing for its spring barrage on mosquitoes. All winter the authorities have been active in draining lowlands, cleaning gutters and ordering the removal of any debris that might become breeding places for mosquitoes. Dr. MacDonell, city health officer, points to the low malarial rate in Jacksonville last summer. He says: "Malaria is caused only by the bite of the mosquito. The popular idea that malaria was caused by stagnant water was

no doubt brought about by the fact that wherever there was stagnant water malaria was prevalent. This was due to the fact that mosquitoes breed in stagnant water. Incidentally, now is the time to start swatting the fly."

Georgia

Dr. H. E. Felton has been appointed commissioner of health of the Bartow County Board of Health, Cartersville, Georgia, succeeding Dr. W. H. Ennis, who has received an appointment in New Mexico. The Bartow County Board is thoroughly organized and receives the active support of the people of the county. It has a county committee of eight leading women to act as an auxiliary board of health, with district committees in every village and town in the county. These committees will arrange for the holding of clinics, at strategic places, follow up the physical examinations of school children for the correction of defects, perform the functions of sanitary police and inspection officers, and see that quarantine regulations are enforced. The new commissioner has adopted an enterprising policy and has sent out a printed letter to all citizens of the county.

✣

Valdosta is doing all it can to reach the public through "Out of the Shadows," the Bureau of Animal Industry film. Picture managers have given the use of their theatres and a number of citizens have given considerable effort to securing this film, and trying to reach as many people as possible. The film shows how animal tuberculosis can be communicated to people through the milk of a tuberculous cow, the clean-up of a farm, and the cure of the infected person. The Kiwanis Club is also coöperating with the city and state officials in public-health work along the lines of an active campaign against tuberculosis among animals.

The Directors of the Chamber of Commerce of Valdosta have unanimously adopted a resolution endorsing the efforts and methods of the Sanitary Department in the eradication of flies.

Illinois

Flood conditions have given rise to more or less serious sanitary and public-health problems at various points along the larger streams in Illinois where hundreds of families have been made homeless.

Sanitary engineers and district health superintendents from the State Department of Public Health have been constantly on duty in the flooded areas since conditions first became serious. The sanitary problems in connection with temporary housing conditions and the disruption of sewerage systems by the flood waters have been many.

The State Department of Public Health has sent out general public warnings in connection with the probable appearance of local typhoid fever and other water-borne epidemics if proper and rigid sanitary precautions are not taken. The public in the flooded districts have been advised to boil all drinking water consumed during the high water period and until the lapse of several weeks after the water subsides. General anti-typhoid vaccination has also been recommended.

The department of health furnish triple typhoid vaccine free of cost.

✣

The State Department of Public Health, with the approval of the Illinois Board of Public Health Advisors, has adopted a railway sanitary code. The code as adopted conforms to the railway sanitary code recommended and approved by the Conference of State and Provincial Health Authorities and has the approval also of the United States Public Health Service and the American Railway Association. Similar codes have already been adopted in about twenty states and it has been the aim of the state, federal and railway health officials to have the Railway Sanitary Code uniform in all states because of the inter-state connection of railroads.

The Railway Sanitary Code regulates the transportation of persons having communicable diseases, the water and ice supplies for railway trains, stations, offices and shops, the cleaning and disinfection of cars, the sanitary condition and control of cars while in service and the sanitary conditions at railway stations, railroad construction camps, offices and shops.

✣

A new clinic for crippled children has been established by the Division of Child Hygiene and Public Health Nursing of the State Department of Public Health at Rochelle. Dr. L. A. Beard, president of the board of directors of the Ogle county tuberculosis

sanatorium was largely responsible for the establishment of the clinic, and he has been placed in charge of local details. The clinic will function as an integral part of the work of the DeKalb County Health League, an organization which effectively coördinates the efforts and expeditures of all health agencies, whether governmental or extra-governmental in DeKalb, Lee, Whiteside, and Ogle counties. The opening of the crippled children's clinic is only one of the new and worth-while functions made possible by the unification of public-health activities in the district.

✠

The State Department of Public Health is carrying out the most complete series of public-health demonstrations ever attempted in southern Illinois. Carbondale, Harrisburg, Benton, Marion and Centralia are the places visited. The program embraces trachoma, tuberculosis and orthopedic demonstration clinics as well as demonstrations in medical inspection of school children and in the carrying out of better baby conferences. Besides these things there is on display the public-health exhibit equipment from the State Department of Public Health, and a number of motion picture films and lantern slides are shown. Lectures are being delivered by the physicians and others in charge of the program. The schedule calls for three days in each of the places named above, the first on the list being Carbondale on April 20, 21 and 22, the others following on the last three days of each succeeding week, in the order listed above.

✠

A new motion picture film entitled "One Scar or Many" has been added to the loan service of the State Department of Public Health. The picture shows pertinent facts concerning smallpox and vaccination in a pleasing and instructive fashion and is suitable for popular use. This and fifteen other films may be had by physicians and others interested in popular health education without cost other than one-way transportation charges. Requests for this service should be addressed to the Director of Public Health, Springfield, Illinois.

✠

The State Department of Public Health has completed arrangements for establishing a new branch diagnostic laboratory at East St. Louis. The diagnostic work, which will include only the examination of diphtheria cultures, will be carried out in the city public-health laboratory under the direction of the local health commissioner, Dr. C. W. Lillie. The East St. Louis branch will also be utilized as a distributing station by the State Department of Public Health, such things as specimen mailing containers, swabs, antitoxin, triple typhoid vaccine, etc., being available to physicians in southern Illinois from that point. This brings the total number of branch laboratories in the state up to seven, the others being located at Ottawa, Urbana, Mt. Vernon, Galesburg, Moline and Chicago.

✠

The Surgeon General of the U. S. Public Health Service has recommended that Thos. G. Hull, Ph.D., superintendent of the diagnostic laboratories of the State Department of Public Health, be appointed as assistant collaborating epidemiologist for the U. S. Public Health Service in Illinois.

✠

Dr. Clarence D. McKinney of Paxton, Illinois, has recently been appointed a district health superintendent under the direction of the State Department of Public Health. His territory will include Ford and McLean counties. Dr. McKinney's appointment brings the total number of such officers who are now active in the state service up to twenty.

Indiana

The Indiana State Health Exposition at Indianapolis, May 19-27, is being held under the auspices of the State Board of Health and the Indianapolis City Board of Health in coöperation with a number of national organizations. There are motion pictures, lectures, lessons, models and special features. The Manufacturers Building at the State Fair Grounds is the scene of this great undertaking. This gigantic display is expected to pave the way for a public awakening to the loss of lives from preventable diseases and to the importance of raising the standard of public health.

One of the opening features of the Exposition was the unveiling of a colossal plaster statue of the Goddess Hygeia. The first speech was made by radiophone by President Harding, the next by the presi-

dent of the day, Governor Warren T. McCray, who upon signal, which was the Governor's salute, fired by artillery, drew the string unveiling the statue. One hundred nurses were present to do homage to the goddess.

✣

Upon favorable report from Hillsboro, Ill., of the success of the Eagle-Picher Co. in putting milk on tap for its employees, the Tuberculosis Society of Huntingdon, Ind., started the same movement in local factories. The Purdue University workers were invited to push the work in the high schools, and in the factories among the adults in general. Employers and managers approved the plan; a committee then visited the different factories during the noon hour, giving short talks to employees; dairymen were urged to interview managers; with the result that three of the largest factories were soon serving milk, two of them at noon, and the other at 9, noon, and at 3, the employees buying when they chose. The Erie R. R. Shops are serving milk at noon. At the Huntingdon Shoe and Leather Factory, 1,200 pints are consumed weekly, and the superintendent is convinced of its efficiency, claiming that the men work better when served at 9, having had early breakfasts. The milk is carried through the shops and sold wherever desired.

Kansas

Miss Hulda Cron, state supervisor of public-health nursing, has been appointed as full-time health officer for Ottawa County beginning June 1.

Dr. F. G. Pedley, epidemiologist, is making an educational campaign throughout the state showing moving-picture films on smallpox vaccination, the production and use of diphtheria antitoxin, Schick tests, and toxin-antitoxin.

A school for health officers was held in Kansas City, Kansas, April 10 to 15.

Kentucky

The Bureau of Child Hygiene of the State Board of Health of Kentucky has been designated by Governor Morrow as the department to administer the joint federal and state funds as provided under the Sheppard-Towner Maternity and Infancy Act recently enacted by Congress. The recent session of the General Assembly made the necessary appropriation to meet the funds allotted to Kentucky for this work by the Children's Bureau. Dr. Annie Veech of Louisville, who is the Director of the Bureau of Child Hygiene of the State Board of Health, will have entire charge of the Maternity and Infant Hygiene work in the state.

✣

Dr. Frank J. O'Brien of the National Committee of Mental Hygiene, and his associates are conducting an intensive mental survey of school children in the city of Louisville in collaboration with the Louisville Mental Hygiene Society and Conference of Social Workers.

✣

A very interesting feature in connection with the progress of the School of Public Health of the University of Louisville and the State Board of Health is the course which has just been inaugurated for the training of sanitary inspectors. Five young men, assigned by the Federal Board of Vocational Education, are taking this course, and the prospects for the future of this departure are very bright. The course consists of eight months of theoretical work in the school, with certain periods of assignment for field work, under the direction of the State Sanitary Engineer, and the Director of the Bureau of Foods, Drugs, Hotels and Restaurants. In addition to this, there is included in the course four months of intensive field work in the counties maintaining all-time health departments.

The School of Public Health will graduate two health officers and nine public-health nurses on June 8. The graduation exercises will be conducted jointly with the other departments of the University of Louisville. Dr. J. N. McCormack is dean of the School of Public Health.

✣

Dr. A. T. McCormack, state health officer of Kentucky, is making an extended tour of the West during the month of April, representing the U. S. Public Health Service on a program of public-health institutes.

Miss Sarah H. Vance, director of Bureau of Foods, Drugs and Hotels, who is Secretary of the Association of Food, Feed and Drug Officials of the South Central States, attended a meeting of that association at Galveston, Texas, May 8, 9 and 10, and

read a paper on the "Need for Training of Sanitary Inspectors," at this meeting.

Dr. W. N. Lipscomb, full-time health officer of Scott County, resigned the 1st of March to take a position as Instructor in Public Health and Hygiene in the University of Kentucky. Dr. H. V. Johnson, Georgetown, Ky., is acting health officer of Scott County until such time as Dr. Lipscomb's successor may be secured.

Dr. C. B. Kobert, director of the Bureau of Trachoma of the Kentucky State Board of Health, together with his assistants, is making an intensive survey of counties in western Kentucky to determine the prevalence of trachoma in that portion of the state.

Massachusetts

Mayor Curley of Boston has appointed Dr. Francis X. Mahoney as health commissioner to succeed Dr. William C. Woodward, who has held the position since August, 1918, and who resigned February 4. Dr. Mahoney held this position prior to Dr. Woodward's appointment. He was appointed to the Board of Health in 1910, serving continuously for eight years as member of the board and later as chairman of the board. In 1916 a change in the city ordinances provided for the control of the department by one official at which time he became Health Commissioner.

✣

Under the direction of the State Department of Public Health and the Department of Education, regional conferences on school hygiene are being conducted. In these conferences school superintendents, medical inspectors and school nurses meet to confer with representatives of the two state departments on matters concerning school hygiene. A play demonstrating the value of school nursing has been presented as one feature of the conferences.

✣

Dr. Oscar A. Dudley has been transferred, as district health officer of the State Department of Public Health, from the Berkshire District to the Worcester County District.

Dr. Leland M. French, now holding the position of epidemiologist of the State Department of Public Health, will succeed Dr. Dudley in the Berkshire District on May 1, 1922.

Dr. Francis A. Finnegan, formerly district health officer of the Worcester County District, has accepted an appointment as director of school hygiene under the Board of Health of Lowell, Mass.

Michigan

An outbreak of hemorrhagic smallpox was started in February by an orderly at Hackley Hospital, Muskegon, who refused vaccination, after exposure through transferring a smallpox patient to another ward. He died, and there were 28 other cases, 8 of which were fatal.

In 1916 smallpox broke out in Mason, county-seat of Ingham County, and general vaccination of all school children was ordered. The parents of one girl, acting on their prerogative refused to allow vaccination and the child was excluded from school until the epidemic subsided. She did not contract the disease.

On Feb. 25 Carol Ellsworth, the former Mason girl who was never vaccinated, dietitian of the Hackley Hospital at Muskegon, contracted "black" or hemorrhagic smallpox. She died from the disease on March 7.

Receiving word that Carol was sick the mother had gone to Muskegon to see her daughter. There she learned that the hospital authorities would not let her see her child unless she was vaccinated. Though she professed not to believe in vaccination, she consented in order to gain admittance to the sick room. After the death of the girl the mother was disinfected and permitted to return home. She developed a slight rash which her family physician declared was not smallpox.

But on April 2, her husband, Homer Ellsworth, who had never been vaccinated, became sick with confluent smallpox, a slightly milder form than the hemorrhagic smallpox. He died from this preventable disease on April 12.

"This series of events," says Dr. R. M. Olin, commissioner of health, "should serve as a timely warning to all parents that it is their duty to have their children vaccinated, advisably before two years of age and again at 15 or 16. Personal liberty grants any one the right to contract smallpox—and die with it—if he does not believe in vaccination, but

it does not give him the moral right to leave helpless children unprotected."

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"Detroit's Government," a 77-page pamphlet published by the city authorities, gives a concise statement for the benefit of the citizens, of services rendered by the various city departments during 1921. The Health Department occupies 9 pages with a variety of interesting figures telling of positive and creditable health chievements.

The death-rate of 11.0 was the lowest in the history of Detroit, the previous low mark being 12.3 in 1919. The vital statistics are calculated on the basis of the school census of 1921 which gave the city 942,373 inhaibtants, rather than the federal census of 1920 (993,739) or the 1921 federal estimate (1,070,000). Had the latter been used, the death-rate would have been but 9.7, but all local evidence goes to show that the present industrial depression has caused a distinct reduction in the urban population of Detroit.

The present year also marks the city's lowest infant mortality rate, 83.6. Tuberculosis and pneumonia reached new lows, with 94 and 95 respectively, the later being a reduction of more than 60 per cent over the 1920 rate of 237 per 100,000.

A Municipal Tuberculosis Sanitorium of 300 beds has been completed, releasing the children's beds at the Herman Kiefer Hospital for adult contagious and maternity cases. A notable system of summer health camps, nutritional correction work, and other advances in child hygiene is in effect.

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A joint committee has been formed representing the University of Michigan, Michigan State Medical Society, the State Department of Health, the Detroit College of Medicine and Surgery, and the Michigan State Dental Society, to present to the public fundamental facts of modern scientific medicine, thus building up sound opinion concerning questions of public and private health. Any community wishing to secure a lecturer may apply to the Committee. All expenses of lecturers will be paid by the organizations which they represent.

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Dr. Blanche M. Haines has accepted the position of director of child hygiene and public-health nursing of the State Department of Health to succeed Miss Harriet Leck, R. N., director, whose resignation became effective May 15. An assistant to Dr. Haines, who will be a registered nurse, will have supervising charge of the public-health nursing program.

Both Dr. Haines and her husband, Dr. Thomas J. Haines, have been in private practice for a number of years in Three Rivers, Michigan. Before her recent work of directing the medical work of the Maccabee order, Dr. Haines acted as chairman of the division of public health of the Michigan Federation of Women's clubs. She is a graduate of Northwestern University Women's college, served her internship in the Mary Thompson Hospital, took postgraduate work at the Philadelphia Polyclinic, and later had charge of a Chicago dispensary.

Since organization of the Bureau of Child Hygiene and Public-Health Nursing in September, 1920, Miss Leck has been instrumental in installing public-health nursing programs in 14 counties, well-baby conferences in 28 towns, and in effecting a coöperating program with the Red Cross, the Michigan Tuberculosis association and the State Department of Health.

Minnesota

A Public Health Institute was held in Minneapolis March 20 to 25 at the University of Minnesota by the State Board of Health and the U. S. Public Health Service. There were lectures, clinics, demonstrations and conferences. Course I covered the following subjects: Venereal Diseases, Syphilis, Gonorrhea, Public-Health Education and Venereal Disease Control. A lecture on the development of modern scientific medicine was given, including a moving picture entitled "The Invisible World." Course II consisted of twenty lectures on Maternal and Infant Hygiene.

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During 1921 the State of Minnesota through its legislative authority accepted the federal provisions for the public protection of maternity and infancy, empowering the State Board of Health to coöperate with the federal Children's Bureau to carry out the purposes of such act, and appointed the state treasurer as custodian of all moneys given

to the state by the United States under the authority of such act for the purposes therein specified. On January 10, 1922, the State Board of Health took preliminary steps toward organization, and at the Public Health Institute held March 20 to 25 arrangements were made, upon checking membership through the counties and finding that there would be no woman or but one on the Board in some counties, that the administrative boards may be increased from five to seven members if necessary, so that no administrative board will have less than two women as members.

Montana

In habeas corpus proceedings brought before him, the chief justice of the Supreme Court of Montana has decided that a person who was detained by order of a health officer because reasonably suspected of being venereally infected, was not entitled to a judicial hearing prior to the time of taking and detention.

The complainant was held by the sheriff of Missoula County under an order of the health officer of the city and county of Missoula, on the ground that, according to the information of the health officer, she was affected with gonorrhea, a disease declared by the statute to be contagious, communicable, and therefore dangerous to the public health.

That the complainant was affected with such disease was ascertained by scientific means by the bacteriologist employed by the State Board of Health upon application of the health officer. She had within a comparatively short time prior to her arrest been plying her trade of prostitution and was found among other prostitutes and in places where women not engaged in prostitution would not be found. Upon this evidence the chief justice was constrained to the conclusion that the health officer was justified in directing her detention until she had become cured or it is safe to allow her to go at large. Therefore the writ was discharged and the complainant remanded to the custody of the sheriff to be held until she should be released according to law.

New Mexico

On December 31, 1921, P. A Surgeon C. E. Waller, of the Public Health Service, completed his detail as temporary health officer for the state, and returned to Washington for duty at the Hygienic Laboratory. Dr. Waller served continuously from July, 1919, in this capacity, and organized the State Bureau of Public Health. He was succeeded by Dr. G. S. Luckett, who had been with him as chief of the Division of Preventable Diseases from the inception of the department.

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Dr. R. M. Schwartz, formerly health officer of Salem, Ohio, was appointed full-time health officer of Santa Fe City and County, and took office on the first of February, succeeding Dr. D. B. Wilson, who was detailed by the International Health Board to Honduras.

Dr. O. C. West was appointed full-time health officer of Albuquerque and the county of Bernalillo, on the 15th of December, 1921, succeeding Dr. J. F. Docherty, who was sent by the International Health Board to Ceylon. Dr. West has had many years' experience in industrial hygiene in Mexico and Central America, and has just returned from two years in China.

Dr. D. B. Williams, formerly of Portales, New Mexico, took the position of full-time health officer of Torrance County on January 1. Dr. Williams has his headquarters at Estancia.

Dr. K. A. Bryant, for two years health officer in Marysville, Tennessee, was appointed full-time health officer of Roswell and Chaves County on February 1, succeeding Dr. D. W. Gudakunst who was serving under the International Health Board.

Dr. Edgar B. Beaver, formerly of Wyoming, was appointed full-time health officer of Valencia County, and took office February 1. Dr. Beaver has his headquarters at Los Lunas.

Three new public-health nurses have been assigned to county health departments, this year. They are Miss Maude Howson, Torrance County, Miss Irene Macdonald, Union County and Miss Gladys Harris, Valencia County.

Dr. W. H. Ennis, formerly health officer of Cartersville, Georgia, took charge of the full-time county health department of Eddy County, with headquarters at Carlsbad on April 1.

H. F. Gray, chief of the Division of Sanitary Engineering and Sanitation, of the State

Bureau of Health, has completed two tours of inspection, covering the entire southern portion of the state. These inspections are made partly in collaboration with the U. S. Public Health Service, and are concerned with the quality of drinking water furnished to interstate carriers. A number of towns are contemplating bond issues for water supplies and sewage disposal works, and have had the personal assistance of Mr. Gray in making their plans.

Miss Margaret Tupper, chief of the Division of Child Hygiene and Public Health Nursing has made several trips for the purpose of instructing new nurses in their duties, and inspecting the work of those who are continuing from last year.

The State Department of Public Welfare has authorized the creation of a Division of County Health Work, under a chief who should correspond to the director of rural sanitation found in many state organizations. This work, as well as that of the full-time counties, will be done in coöperation with the International Health Board. So far, the position has not been filled.

On April 27 a joint meeting of the New Mexico Health Officers' Association and the Public Health Nurses' Association was held at Albuquerque. A very full program occupied the entire day, with the end of making the meeting as practical as possible for both the full-time and part-men, and for the nurses. One of the leading features of the meeting was a round-table discussion of the problems which each health officer encounters in his work. A banquet was held in the evening at the Alvarado Hotel. On the same date a meeting of the Graduate Nurses' Association of New Mexico was held in Albuquerque.

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On April 28 and 29, the New Mexico State Medical Society met in Gallup. At this meeting, the Bureau of Health exhibited the wax models of syphilitic lesions recently made by the American Social Hygiene Association and in connection with this, presented the Association's film on the treatment of syphilis. Dr. Luckett presented a paper to the Society on "The Relationship of the Medical Profession to the Health Department."

The free venereal disease clinics in Santa Fe and Albuquerque are increasing their attendance rapidly, in spite of the fact that the work must be done entirely through the volunteer services of local physicians.

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There are now eight counties organized on a full-time basis, with a health officer and a public-health nurse in each. In some cases, there are two nurses working under the direction of the health officer, and also a sanitary inspector. This is an increase of three full-time counties over 1921. The five counties adopting this program last year are continuing through 1922.

The Bureau of Public Health has inaugurated a weekly bulletin for its health officers, in which are given the number of diseases reported for the preceding week, by counties, and also short paragraphs of news or instructions of particular interest to the health officers.

New York

The sixth annual meeting of the New York State Association of Public Health Laboratories was held in Albany on April 19. The scientific program included the following papers: A Comparison of Room, Icebox and Ice Water Bath Temperatures for the Fixation of Complement, by Misses Hannah V. Langworthy and E. Jane Kerley, Albany; Production of Anti-sheep Amboceptor in a Mule, by Miss Ruth Gilbert, Albany; A Summary of the Results of Recent Investigation on Pertussis Vaccine Carried Out at the Bureau of Laboratories, Department of Health, New York City, by Dr. Charles Krumwiede, New York City, Leptospiras, Pathogenic and Nonpathogenic, by Dr. Hideyo Noguchi, New York City—discussion opened by Dr. Augustus B. Wadsworth, Albany; Changes in Virulence of Tubercle Bacilli, by Dr. Edward R. Baldwin, Saranac Lake—discussion opened by Dr. Paul A. Lewis, Philadelphia, Pa.

At the business session the officers elected were: President, Dr. W. B. Stone, Schenectady; Vice-President, Dr. W. C. Noble, New York City; Secretary-Treasurer, Miss M. B. Kirkbride, Albany; Member of Council, Dr. Ellis Kellert, Albany.

The midyear meeting of the association will be held in the autumn at the State laboratory, Albany.

Accidental infection of a young woman bacteriologist from a rat which she was examining in search of the germ of epidemic jaundice has furnished the first direct evidence that microbes harbored by these rodents can induce that disease in human beings, according to a report recently submitted to Dr. Hermann M. Biggs State Commissioner of Health, by Dr. Augustus B. Wadsworth, Director of the Division of Laboratories and Research.

"On Friday, February the 3rd," said Dr. Wadsworth's report, "one of our laboratory workers who was preparing for the inoculation of a rabbit with a virulent culture of the leptospira from a rat pricked her finger with the needle of the syringe containing the culture. The wound was cleaned and disinfected and there were no symptoms until the evening of February 10th when a fever commenced accompanied by general malaise, nausea and vomiting. Although the patient's temperature reached 104 degrees there was no sign of involvement of any of the organs. In fact, the diagnosis was quite obscure until cultures of the leptospira were finally obtained. Forty-eight hours after the onset a specimen of blood was taken for culture and for the inoculation of guinea pigs. The direct examination of the blood specimen showed a few forms resembling leptospira which, however, could not be definitely identified. Further specimens were taken on the fourth day but no definite evidence of the presence of the organism was obtained until February 24th when one of the guinea pigs inoculated on February 12th developed jaundice. The following day a second guinea pig, inoculated on February 14th, also developed jaundice. It was at once chloroformed and examined and the characteristic forms of the leptospira were found. The result of the examination therefore leaves no question as to the diagnosis of jaundice."

Dr. Noguchi of the Rockefeller Institute was the first scientist to find the jaundice organism in rats in this country some years ago. This organism resembles very closely the germ recently discovered by Dr. Noguchi and supposed to be the cause of yellow fever. As soon as he learned of the discovery at the State Laboratory, Dr. Noguchi went to Albany to check over the technical details of the work and to lend the benefit of his long study and experience with this group of microörganisms. He took back to New York with him specimens of blood from the patient which proved to be negative on direct examination but when some of the blood was later injected into guinea pigs at the Rockefeller Institute these animals also developed jaundice, thus confirming the findings previously reached.

"In this accidental infection of the human being with the germ being studied," said Dr. Biggs, commenting on Dr. Wadsworth's report, "we have a clear fulfillment of the requirements laid down by the eminent scientist, Robert Koch, as necessary to show the causal relationship of a microorganism to disease in man.

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A testimonial dinner to Dr. S. Josephine Baker, on the occasion of her completion of twenty years of service in the New York City Department of Health, thirteen of which were spent as director of the Bureau of Child Hygiene, the first in any American city or state, which she founded, was given at the Hotel Commodore, New York City, April 25.

About 350 of Dr. Baker's loyal friends in all circles of the city's life gathered to pay her tribute. Dr. Henry Dwight Chapin was toastmaster. Miss Grace Abbott spoke for the Federal Government, Dr. Henry L. K. Shaw for the State Department of Public Health, Commissioner Royal S. Copeland for the City Department of Health, Dr. L. Emmett Holt for the pediatrists, Miss Annie W. Goodrich for the public-health nurses, Bailey B. Burritt for the social workers, Miss Mary Arnold for the co-operating private agencies, Dr. Alice M. Wakefield for the women physicians, and Mrs. A. Gordon Norrie for the women of the state. Dr. Baker responded gracefully and in prophetic vein.

North Dakota

Dr. Robert Oleson, Surgeon, U. S. Public Health Service, recently on duty in Wisconsin, has been assigned to North Dakota to assist in public-health work.

Oklahoma

A Bureau of Maternity and Infant Hygiene is soon to be established, under the Sheppard-Towner Act, for the state of Oklahoma, and Miss Leila Hoagland has been named director.

Recent appointments of health officers have been made as follows: for Grant

County, Dr. J. E. Hall, and for Wagoner County, Dr. M. R. Joblin of Parker.

Elsewhere in this issue is announced the distressing death of Jules Schevitz, secretary of the Oklahoma Public Health Association. Miss Mary Hastings, former assistant secretary is now acting secretary.

Oregon

The Oregon State Board of Health and the United States Public Health Service held a Public Health Institute and Conference of City and County Health Officers, April 10 to 15 at the Multnomah Hotel, Portland. The faculty was composed mostly of local physicians. Clinics were held at the People's Institute, visits were made to the University of Oregon Medical School and various hospitals.

South Dakota

Dr. Clara Edna Hayes of Illinois, graduate of the Illinois College of Physicians and Surgeons, and for the past four years superintendent of the State Training School for Girls at Geneva, Illinois, has been appointed head of the newly created Division of Child Hygiene. This Division is created for the purpose of carrying out the provisions of the Sheppard-Towner Law.

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A. H. Wieters, head of the Department of Sanitary Engineering, late of the State Department of Engineering of Kansas, finds a field ripe for a larger effort in organized sanitation. Calls are coming from all parts of the state for the assistance of this Department in local drainage and sanitation problems.

Saskatchewan

Commissioner Seymour is endeavoring to impress upon the municipal authorities of the province the necessity of a properly pasteurized milk supply. Most of the cities and towns of Saskatchewan have enacted a by-law making pasteurization compulsory, but so far the city of Regina has lagged behind the procession, having refused to enact such a measure in 1921. The milk pasteurizing plants throughout the province are now operating under the direct supervision of the Bureau of Public Health. Dr. Seymour is making a special campaign during 1922 to round up the remaining towns.

The Hon. John Michael Uhrich, M. D., the newly appointed minister in charge of the Bureau of Public Health, and also holding the portfolio of provisional secretary, has practiced medicine in the province since 1908.

Dr. Uhrich is a son of a French veteran of the 1870 war, and was born in Ontario in 1877, graduating in medicine from the Northwestern University of Chicago in 1902.

He has represented Rosthern in the Legislative Assembly since the last general election in 1921.

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"The most despicable case I have known for many years," were the words of Magistrate Heffernan, of Regina, in sentencing a married man to the maximum penalty of $100 or three months' imprisonment, when convicted on a charge of knowingly infecting a young woman of the city with syphilis.

The case was prosecuted by an official of the Bureau of Public Health under the provisions of the V. D. Act, as a result of investigations made when the condition of the girl was first made known.

The girl is now receiving treatment in the free clinics of the Bureau, and is on the way to recovery, but owing to lack of treatment in the early stages, one eye is entirely lost.

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Texas

Dr. J. H. Florence has been appointed by Governor Neff president of the board and state health officer of Texas, succeeding Dr. Manton M. Carrick, who resigned January 20, after serving one year.

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At a meeting of the U. S. Health Institute conducted in Dallas recently, Dr. A. J. McLaughlin, assistant surgeon general of the United States Public Health Service, announced that $30,000 had been set aside by the government to cover expenditures in connection with plague-prevention work outlined for Texas. At the same time it was reported that under the administration of Dr. Manton M. Carrick as state health officer over a million plague-carrying rodents had been destroyed and that the sum

of $175,000 had been paid out for this phase of public-health endeavor.—*Medical Insurance and Health Conservation,* January, 1922.

Washington

About January 16, 1922 the director of public health of the state of Washington notified the county health officer of Thurston County and the city health officer of Olympia that owing to the prevalence of smallpox all pupils in schools were to be considered "contacts" and that regulations of the State Board of Health adopted July 27, 1921 should be complied with. That is, that no teacher, pupil nor janitor be permitted to attend school without presenting satisfactory evidence of having been vaccinated within seven years of the beginning of the term, or present a certificate from the city or county health officer showing that the individual is not in condition to submit to vaccination, such latter certificate to be issued only after the matter was determined by a board of physicians appointed by the board of health. The county health officer then gave notice to the directors of School District No. 1, who issued a bulletin confirming the above regulation and stating that those who did not comply should be excluded from school and isolated in their homes for a period of eighteen days.

The parents of one child refused to comply and filed affidavit in the superior court seeking to have the pupil reinstated. The lower court refused the petition and the case was appealed to the Supreme Court on the legal question of whether the board of health had the power to promulgate and enforce the regulation. The following duties and powers of the State Board of Health are defined by statute: The State Board of Health shall have supervision of all matters relating to the preservation of life and health, shall have supreme authority in matters of quarantine and the prevention or spread of contagious disease, including the enforcement of orders in local matters in case of emergency or negligence. It shall be the duty of local board of health and other officers and employees of the state, county or township to enforce such quarantines as may be adopted by the State Board of Health, with the penalty of fine upon failure to do so. The duty of the director selected by the State Board of Health shall be to enforce all laws passed for the protection of the public health, investigate epidemics of disease and advise local health officers. The Supreme Court upheld the decision of the lower court and affirmed its own previous ruling in the well-known case of State ex rel. McBride v. Superior Court that the acts and rulings of the board of health are final and conclusive and not to be reviewed by the courts or denied because the authority may be abused or the law maladministered, and that the finding of fact by a properly constituted health officer was final and binding upon the public as well as upon the courts—especially as there is no allegation or contention that the action complained of in this case was in anywise arbitrary, capricious or unreasonable. It was decided that the order of the school directors was proper as in compliance with the order of the health officer which they had no right to disregard or disobey in their official capacity any more than as individuals. The contention that the provision in the notice from the school directors that those who do not comply with the regulation shall be isolated for a period of eighteen days was not valid because not embraced in the original regulation of the state board, was not considered or decided by the court as the eighteen days had expired before the case was reached for hearing.

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The Junior Red Cross of Spokane, Washington opened a clinic and hospital in January, 1920, and to date 620 children have been operated on for the removal of diseased tonsils and swollen adenoids. The idea of a clinic and hospital of their own made a strong appeal to the children. The boys in manual training have considered it a privilege to make bedside tables, chairs and cabinets, while the girls have prepared the bed linen, bed jackets, operating gowns, curtains and towels. Even the mentally defective pupils have woven rugs for the hospital floors. Throughout its four years of work in the Spokane schools, there has been entire harmony between the Junior Red Cross organization and the administration of the schools.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst and E. B. Starr.

Definition of the Physician in Industry.—At a recent meeting of the Conference Board of Physicians in Industry, the following definition of the physician in industry was adopted:

> "The physician in industry is one who applies the principles of modern medicine and surgery to the industrial worker, sick or well, supplementing the remedial agencies of medicine by the sound application of hygiene, sanitation and accident prevention; and who, in addition, has an adequate and coöperative appreciation of the social, economic and administrative problems and responsibilities of industry in its relation to society."

The discussion leading up to the formulation of this definition extended over several months. The question was viewed from all angles and many suggestions were considered for including in the definition an outline of what his duties and functions were.

It was felt, however, that in order to avoid a complicated statement it would be better to include in a definition only the broad fundamental principles upon which the work of the physician in industry is based, leaving to subsequent elaboration the finer details. It was pointed out that the definition adopted should emphasize both the medical attainments and the industrial requirements of the physician engaged in this work in order to make his duties clear both to the medical profession and to industrial management.

It is assumed that the physician engaged in industrial work is well grounded in the fundamentals of medicine and surgery. He is, first of all, a physician. It is obvious, however, that this alone, while equipping him for satisfactory service in private practice, does not meet fully the requirements of industrial work. In his industrial experience he has, of necessity, to deal with questions of sanitation, hygiene, and accident prevention as applied to large numbers of people working in comparatively close association. Only by special knowledge of the work in hand will the physician be able satisfactorily to discharge his duties. His knowledge of plant processes together with the physical examination of applicants for employment and of workers already engaged will enable him by judicious placement to reduce materially the accident and morbidity hazard and rate.

It must be realized that many of the qualifications for successful medical work in industry are of a non-medical nature, and call for a knowledge of the laws of social and industrial economics and of the administrative problems which arise in the conduct of an industrial medical department. The physician in industry must have a clear conception of the responsibilities of the industry to its workers, and through them collectively to the community. On the other hand he should recognize clearly the duties of workers to the industry in which they are engaged. It is an intelligent appreciation and consideration of these problems that make for the success of the work of the physician in industry.

It is hoped that this definition will tend to remove misconceptions as to the work of the physician in industry, and establish his position and his work upon a basis satisfactory alike to the physician and to the industrial organization. Dr. John J. Moorhead is chairman of the Board, Dr. F. L. Rector, secretary, and the membership, about 30 of the leading plant physicians of the country. It is affiliated with the National Industrial Conference Board, 10 East 39th St., New York City.

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The 1920 factory inspection report for the United Kingdom.—"Practically all the continuous industries are now working on the three-shift system, and cases of increased output, substantially greater than the increase of staff, are mentioned in three South Wales works formerly run on the two-shift system."—*Ohio Council on Women and Children in Industry*, April, 1922, p. 6.

Illuminating Engineering Society.—At a meeting of this society at the house of the Royal Society of Arts on February 28, Mr. Leon Gaster, honorable secretary of the society, delivered an address in which he drew attention to the importance of good factory lighting for the health and safety of workers, and as a condition of efficient and rapid work. Experience, he said, had shown a close connection between the prevalence of accidents and lighting conditions; the cost of proper lighting was usually less than 1 per cent of the cost of production, and expenditure to secure it was therefore a good investment, to be regarded as a national asset. Ideal requirements should enable work to proceed at night with the same ease and safety as in good daylight. The necessary conditions had been admirably summarized in the reports issued by the Home Office Departmental Committee on Lighting in Factories and Workshops. General experience indicated that for ideal requirements there are four main conditions to be satisfied, namely: (a) sufficient illumination; (b) constancy and uniformity of illumination over the working area; (c) placing and shading of lights so that no inconvenience and prejudicial effects are experienced from "glare;" (d) placing of lights so as to avoid inconvenient extraneous shadows on the work. There would naturally also be special conditions to be fulfilled, arising from the peculiar nature of any industrial process, and a form of illumination that is ideal for one process may be less satisfactory for another. The home office had for a number of years taken a great interest in industrial lighting, and in this respect this country was in advance of the rest of Europe, but the subject is now receiving attention in various countries, and interchange of views is most desirable in order that any recommendations may be based on commonly accepted general principles. A useful step in this direction was taken by the appointment, at the first technical session of the International Illumination Commission last year, of an international technical committee to review the whole subject. Ultimately it is to be hoped that an international code on industrial lighting may be framed. Mr. Gaster mentioned that this question is receiving attention from the section of industrial hygiene of the International Labour Office established by the League of Nations at Geneva. —*The Lancet,* Vol. ccii, No. 5141, March 11, 1922, p. 506.

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Common Colds in Relation to Industrial Hygiene.—The author summarizes as follows: 1. Every person complaining of nasal obstruction, sneezing and discharge is not suffering from a cold in the head. Learn to differentiate.

2. A careful history will be helpful in the diagnosis. The duration of the symptoms will indicate to a certain extent the character of the affection. A long duration points to a complication or to some disturbance which is not a cold. Inquire into the character of the person's work, the condition under which he works, etc.

3. Differentiate the three stages of a cold and treat the patient accordingly. Do not use irritating antiseptics at any stage.

4. Any case resisting treatment for from two to four weeks should be examined by a rhinologist.—Harold G. Tobey, *Journal of Industrial Hygiene,* Vol. III, No. 11, March, 1922.

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Infectious Arthritis of the Spine.—After citing typical case reports the authors summarize as follows: These cases illustrate the need of particular care by industrial physicians in examining the backs of all employees. Infectious arthritis of the spine is exceedingly expensive both to the employer and to the employee, and is a baffling problem to the industrial physician.

Many times, trivial accidents involving the back are treated as muscular strains, which would be the natural diagnosis from superficial examination.

The duty of the industrial physician, in a word, requires:

1. More attention to the condition of the joints at the time of entrance examination.

2. Prompt and exhaustive analysis of back strain to detect immediately cases of infectious arthritis.

3. Prompt treatment to the focus of infection in an endeavor to eradicate it, and adequate treatment to the diseased area.

The effects of this disease are sufficient to warrant these precautions.—J. F. Curran and S. F. Foster, *Jour. of Industrial Hygiene,* Vol. III, No. 11, March, 1922, p. 342.

Ventilation.—The following is excerpted from the article on Lighting and Ventilation of Factories, Hours of Labor and Health, by Dr. J. S. Purdy, Sydney, Australia, which appears in the March, 1922, issue of the *Journal of Industrial Hygiene*:

"In view of the research of recent years, the whole subject of ventilation has had to be recast. Discomfort with consequent ill health from lack of ventilation, or rather from absence of perflation, is due to the retention of the surplus heat of the body following an increase in the temperature and relative humidity and stagnation of the air. The charge which renders air unfit for human beings is a diminished capacity for taking up heat, which is brought about by an increase in the temperature and in the amount of aqueous vapor in the air. It is necessary, therefore, to ventilate rooms, not because of the excess of carbon dioxide that is to be found where persons are confined in an enclosed space, not on account of the lack of oxygen, not primarily because of any mythical organic poison, but first of all to eliminate the superfluous heat from the bodies of the occupants. This has been definitely proved by recent investigations and experiments by Leonard Hill, Haldane, Flügge and others."

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Census of Safety and Health Workers.—Attention is again called to the effort of the National Safety Council, 168 N. Michigan Avenue, Chicago, to secure certain data required in the Council's census of all persons engaged in safety and health activities in connection with industry. The reader should write directly to the Council for the prescribed blank, or note the form as presented in the JOURNAL for February, 1922, p. 176.

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Industrial Reconstruction Hospital.—As a direct result of the world-wide experiments in rehabilitation of men injured in war, America now has a hospital dedicated solely to the care of industrial diseases and accidents, and the restoration of industrial casualties to active useful life again. This is the Reconstruction Hospital, with its new eleven-story addition at 100th Street and Central Park West, New York City.

The beginning of the new building marks the end of the first year at the present location, during which time the hospital's space and facilities have been taxed to their utmost. It is a new idea to have a hospital where men suffering from any of the many casualties of industry may receive the benefits of an intensive study of their cases by surgeons specializing in all the newest forms of therapy, combined with the complete after-care of the patient until he is fit to earn a livelihood. Yet in the brief life of the present hospital, men have been sent from all over the country to take advantage of its unusual treatment, and many suffering from seemingly incurable physical ailments and distortions have been returned to useful industrial life again.

The addition to this new style hospital will be of limestone and brick. It will have, besides the usual equipment of a modern hospital, the most extensive and complete physio-therapy plant in existence. There will be rooms for occupation therapy, especially designed equipment embodying the latest principles in rehabilitation, electrotherapy, and mechanical apparatus, whirlpool baths, so successfully developed by the military surgeons during the war, and a gymnasium where a score of mechanical devices assist the patient in recovering the fullest use of stiffened joints and weakened muscles.

The plans provide for space for 175 beds in small wards and semiprivate rooms where women and children may be treated as well as men, and recreation and reception rooms for the older patients. There will be a radiophone to help in keeping the patients' minds toned upward as well as their bodies.

The total cost of the new annex will be $1,500,000. It is hoped to complete the first two stories at once to relieve the pressure on the present hospital in which an average of 175 cases receive treatment daily, half of that number being sent by the government.

The officers of the Reconstruction Hospital are: President, W. Gilman Thompson, M. D.; Chairman of the Board of Directors, Allen Wardwell; Vice-Presidents, John A. Hartwell, M. D., Giraud F. Thomson; Treasurer, Edward M. Townsend; Secretary, Elwyn W. Poor.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Study of Blood Sugar Curves Following a Standardized Glucose Meal.—The basis for the standardization of the technic of the administration of the glucose meal is pointed out. The necessity for such standardization is made clear. The discussion of the many known factors which influence blood glucose curves shows the importance of the consideration of all of them when such curves form part of any study. The pathologic conditions in which the form of blood glucose curve is usually (within certain limits) constant, are: (1) hyperthyroidism and hypothyroidism; (2) hypopituitarism, and (3) diabetes mellitus. There are certain conditions which, in general, show increased curves after the glucose meal. The curves obtained in such conditions do not even approximate the fair degree of constancy found in the above-mentioned conditions. Our present knowledge of glycogenic function in these conditions is rather meager. In this class belong the effects of infectious toxins; those of cancerous origin; those supposedly found in pernicious anemia and leukemia; Hodgkin's disease, etc. Here also belong conditions of the mental states. "Functional" disturbances, usually spoken of as neurasthenia, very definitely disturb the height of blood sugar after a glucose meal.—W. H. Olmsted and L. P. Gay, *Arch. Int. Med.*, 29, 384, (1922).

✠

The Digestibility of Bacteria.—Bacteria do not adsorb proteolytic ferments. The protein of bacteria is protected from the action of proteolytic ferments by the lipoidal envelope with which they are surrounded. The agencies which destroy this protective mechanism act by disturbing the lipoid distribution. The antibodies present in immune serum do not in any way render bacteria more digestible by trypsin.—C. E. Dukes, *Brit. Med. Jour.*, March 18, 1922.

✠

The Relationship of Blood Groups to Disease.—The authors have made an investigation of the blood grouping of 2,446 patients at the Mayo clinic with the view of determining a possible correlation of any particular blood group with any particular disease. The main types of disease studied were cases of malignant tumors, leukemias, primary and secondary anemias, jaundice, lesions of the gall bladder, and chronic ulceration of different portions of the alimentary canal. In no instance where the data were sufficiently large to allow the justifiable drawing of a conclusion was any such correlationship found. They point out that in performing work of this nature it is essential, for a correct interpretation to be placed on the results, to take account of the nationality of the patients, for there appears to be considerable variation in the different races with regard to the exact distribution of the blood groups.—Buchanan and Higley, *Brit. Jour, Exp. Path.*, December, 1921; *Brit. Med. Jour.*, March 18, 1922.

✠

A Comparison of the Formaldehyd-gel Reaction of Gate and Papacostas with the Wassermann Reaction.—The formaldehyd-gel test as used in these experiments is not so reliable a test for syphilis as the Wassermann test with a cholesterinized antigen and water bath incubation. It is not quite so reliable as the Wassermann test with an alcoholic extract antigen. The formaldehyd-gel test gives results in closer agreement with the negative than with the positive Wassermann tests. When the two tests disagree, a positive formaldehyd-gel diagnosis will be found to be correct in an undetermined percentage of cases; a negative formaldehyd-gel diagnosis will rarely be correct. The substance on which the formaldehyd-gel reaction depends is not present in the spinal fluid of syphilitic patients, or at least not in sufficient amounts to cause coagulation on the addition of formaldehyd. Incubation of the serums in unstoppered tubes increases the number of positive reactions, accompanies and is probably dependent on increased desiccation. It will probably be found that inactivation, unless increased evaporation is prevented, also affects the percentage of positive formaldehyd-gel reac-

tions. Heat, aside from the effect on desiccation, does not increase the number of positive reactions. Serum to which a small amount of formaldehyd has been added does not coagulate on exposure to a boiling temperature in a test tube. The ice box temperature delays the coagulation of the positive serums. An increase in the amount of formaldehyd added to the serums increases the percentage of water and delays the coagulation of the positive serums. Suggestions are given for the interpretation of results obtained with the formaldehyd-gel test and for future research.—Victor Burke, *Arch. Derm. Syph.*, 5,469, (1922).

✣

Wassermann Reaction in Relapsing Fever.—From evidence presented by the author it appears probable that a transient positive Wassermann reaction may be found to be a constant phenomenon during the acute stage of relapsing fever. The transient character distinguishes it from the reactions due to syphilis. If the positive result is observed on every occasion in a particular patient, it may be suspected that he has syphilis also.—H. E. Road, *Brit. Jour. Exp. Path.*, 3, 59, (1922); *Jour. A. M. A.*, 78, 1163, (1922).

✣

A Micro-Method for the Determination of Sugar in Small Amounts of Blood.—A micro-modification of the method of Folin and Wu is described for the determination of blood sugar in 0.2 c.c. of blood, which may be obtained from the finger or lobe of the ear. No change has been made in the reagents used in the original method of Folin and Wu, and this obviates the necessity of preparing a separate set of solutions. The authors have found the method of value for clinical purposes in supplementing the original method when blood cannot be obtained from a vein.—H. O. Pollock and W. S. McElroy, *Am. Jour. Med. Sciences*, April, 1922.

✣

Tubercle Bacilli in the Blood.—The author has examined the blood of 100 cases of tuberculosis (mostly pulmonary) with a view to the detection of tubercle bacilli. He took 4 to 5 c.c. of blood, let it coagulate, removed the serum without touching the upper part of the clot (preferably from the red clear zone), spread on a slide washed with sulphuric acid, fixed with alcohol and stained with Ziehl. Of the 100 cases examined, 52 gave a positive result, mostly where the temperature was raised, and in some scattered tuberculous lesions without pulmonary affection. In 8 early cases tubercle bacilli were found in the blood, although repeated examination of the sputum gave a negative result.—Albertaria, *Tuberculosi*, Dec., 1921; *Brit. Med. Jour.*, March 25, 1922.

✣

Blood Platelets and Bacterial Agglutination.—When bacterial suspensions are injected into the circulation of immunized rabbits, or of normal rabbits having natural agglutinins, the bacteria are immediately agglutinated and rapidly leave the blood stream. The blood platelets, when present, become attached to a majority of the clumps of bacteria, but both the agglutination and the disappearance of the bacteria from the circulation, of either normal or immunized animals, are just as complete and rapid when the platelets are absent. Suspensions of staphylococcus aureus are not agglutinated, when injected into the circulation of normal rabbits, but the bulk of the organisms rapidly leave the blood stream. When platelets are present they collect into clumps to which many of the cocci become attached before leaving the circulation, but the cocci leave the circulation with equal rapidity when no platelets are present. In this case the bacteria leave the blood stream because the plasma so alters them that they adhere to the endothelial cells of the capillary systems. Virulent pneumococci remain in the circulation of normal rabbits, because they are neither agglutinated nor opsonized. Depending upon the antibody content of the blood, one of three things occurs when artificial bacteremias are produced, viz.: (1) the bacteria are neither agglutinated nor opsonized, and continue to circulate in the blood stream, (2) the bacteria are agglutinated, or are both agglutinated and opsonized, and rapidly leave the circulating blood and collect in the capillary systems of the liver, spleen, lungs, etc., or (3) the bacteria are not agglutinated, but are opsonized and rapidly leave the circulating blood and likewise collect in the internal organs.—Carroll G. Bull and Clara M. McKee, *Am. Jour. Hygiene*, 2, 208, (1922).

✣

New Method for Gram Stain.—Air dry thinly spread film and fix with least amount of heat necessary to kill the organisms and fix them to the slide. Flood smear with a 1

per cent aqueous solution of the dye to be used. Mix with the dye on the slide 3 to 8 drops of a 5 per cent solution of sodium bicarbonate, allow to stand two to three minutes. Flush off the excess stain with the iodine solution and cover with fresh iodine solution and let stand one minute or longer. Wash in water as long as described and blot off all free water until surface of film is practically free of water, but do not allow the film to become dry. Decolorize with acetone or acetone and ether (1 part ether and 1 to 3 parts acetone) until decolorizer flows from slide practically uncolored. This usually requires less than ten seconds. Blot dry. The slide quickly dries without blotting. Counter stain for five to ten seconds, or longer if desired, with a 2 per cent aqueous solution of Safranine O. Wash off excess stain by short exposure to water, blot and dry.

Steaming the iodine solution of the slide or increasing the period of exposure does not cause the Gram negative organism to resist decolorization. Drying the film after exposure to the iodine solution greatly delays decolorization of the Gram negative organisms. There are two critical steps in the Gram staining method: (a) the removal of the water after the iodine solution and (b) the decolorization. The control of these steps determines to a large extent the amount of differentiation between the Gram positive and Gram negative organisms. The addition of water to the decolorizer, either on the slide or in the bottle, retards the decolorization of the Gram negative organisms and increases the rate of decolorization of the Gram positive organisms. Acetone is superior to absolute alcohol as a decolorizer. It decolorizes the Gram negative organism and debris on the slide much more rapidly and the Gram positive organisms more slowly than absolute alcohol. Mounting the films in distilled water, tap water or physiological salt solution does not affect the staining reaction. Mounting the films in sodium bicarbonate or lactic acid greatly affects the result. The addition of sodium bicarbonate results in a greater concentration of the methyl violet dye being present in the Gram positive organism after decolorization, and lactic acid brings about the opposite result. The failure of Gram positive organisms in old cultures and in smear from the genital-urinary tract to retain the violet dye may be due in part to the presence of certain acids. These facts suggest the possibility of enhancing the value of gentian violet in selective media and improving dye therapy by the addition of an alkali. All of the colon-typhoid group of organisms do not differ from the gonococcus-catarrhalis group of organisms in their resistance to the penetration of the methyl violet dye used in the Gram stain.—Victor Burke, *Jour. Bact.*, Vol. 7, 159, (1922).

✣

Bacteriology of Feces and Food of Normal Breast Fed Babies.—A bacteriologic study of the feces and the food of normal babies receiving breast milk was made by the authors. During the investigation a "bifidus-like" bacillus was isolated from the breast milk and from the skin around the nipple. It differs from B. bifidus as isolated from nurslings' feces in one respect only, namely its ability to grow well initially under ærobic conditions. B. bifidus is the dominant living type of organism in the feces of normal breast fed babies.—E. W. Brown and A. W. Bosworth, *Am. Jour. Dis. Children*, 23, 243, 1922; *Jour. A. M. A.*, 78, 909, (1922).

✣

Capillary Cultures of Typhoid Bacilli.—The author comments favorably on the ease, simplicity and reliability of what he calls the capillary method for differential cultivation of bacteria from the stools. After the stool has been well mixed with saline and kept for an hour at room temperature, it is poured into a conical glass or beaker and a strip of filter paper 12 c. long by 1 c. wide is hung in the glass, the end of the paper 1 c. below the surface of the fluid, without touching the side of the glass. After half an hour of this, the paper is pressed on a Conradi plate, and set in the thermostat till the next day. He has applied this method to 800 specimens. It is particularly useful when proteus bacilli are unusually numerous, as they crowd out others on the plates with the ordinary technic. The typhoid and paratyphoid bacilli seem to climb rapidly up into the strip of paper, the colon bacilli following behind. With a dilution of even 1:40,000 he found ten or twelve isolated colonies of typhoid bacilli above the zone of colon bacilli.—S. V. Bagger, *Hospitalstidende*, (Copenhagen) 65, 81, 1922; *Jour. A. M. A.*, 78, 1014 (1922).

The Kottmann Reaction for Thyroid Activity.—To 1 c.c. of clear serum are added 0.25 c.c. of a 0.5 per cent solution of potassium iodid and 0.3 c.c. of a 0.5 per cent solution of silver nitrate. The resulting suspension of silver iodid in the serum is next exposed for five minutes at a distance of 25 c. to a 500 watt Mazda lamp (or other light of equal intensity). Then 0.5 c.c. of a 0.25 per cent solution of hydroquinone is added and the color changes observed at five minute intervals. In carrying out the test, a dark room is theoretically desirable; diffused daylight does not materially interfere with accurate results. The serum used should be freshly drawn, preferably in the morning before food has been taken, and should be free from hemoglobin and quite clear. The test tubes used should be carefully cleaned and of uniform size. A tube 1.5 by 8 c. is quite satisfactory in that it permits thorough mixing of the reagents by gently agitating and rotating the tube. The reagents should be freshly prepared and accurately measured. A slight excess of iodid retards the reaction, while an excess of the silver nitrate accelerates the appearance of the color on development. The color reaction that develops after the addition of hydroquinone varies with different serums. With serum from hyperthyroid cases, Kottmann found that the original yellowish color of the serum mixture persisted for a considerable time; in normal serums a brown color (silver iodid reduced to free silver) makes its appearance quite promptly; in serums from hypothyroid cases Kottmann found the development of the brown color reaction accelerated. The serum from individuals who have had bromides retards the reaction, and such medication must be excluded if the test is to be carried out. The Kottmann reaction seems to offer an index of thyroid activity, and as such should be of value in clinical work. The test is simple, is rapidly carried out, and few other clinical conditions yield serums in which the reaction is delayed to a degree at all comparable with the reaction obtained with exophthalmic serums. Some retardation is noted in other conditions, such as cachexia, and occasionally in pregnancy and in severe excitement, but these conditions should in no way interfere with the clinical interpretation of the test. In only a few cases of clinically active hyperthyroidism was the typical reaction absent (three out of seventy). To be of greatest value, a test of this kind should be studied in a large series of borderline cases, including early tuberculosis and neurasthenia, because they are usually the ones in which a test of this nature is really needed. In a study of 400 serums obtained from patients with thyroid dysfunction, as well as those ill with other disease, and a large group of normal persons, the photochemical serum reaction devised by Kottmann yielded a close index of the thyroid activity. The test is simple and should be of material aid in the clinical as well as the experimental investigation of thyroid problems.—William F. Petersen, F. T. H'Doubler, S. A. Levinson and J. E. Laibe, *Jour. A. M. A.*, 78, 1022, (1922). ✠

Hydrogen Ion Concentration Studies.—The hydrogen method of determining the reactions of fluids used for therapeusis or clinical investigation is of great importance. When fluids that have a higher or lower hydrogen ion concentration than that of the blood are injected into the circulation at the rate or in an amount that the blood cannot neutralize or buffer, reactions characterized by chills and prostration follow. By the hydrogen ion method the authors have determined that distilled water, if not carefully prepared, or when stored as a stock solution, becomes highly acid so that when used as a solvent it may produce a solution with a much higher hydrogen ion concentration than that of the body. Glucose solutions become highly acid when boiled, autoclaved or when permitted to stand for a few hours. Stock glucose solutions as used clinically are highly acid. Physiologic sodium chloride solution, when prepared with stock distilled water or impure salt, may be very acid. A normal or physiologic salt solution makes it isotonic with the blood, but it should also have the same hydrogen ion concentration. These solutions may be easily corrected as to hydrogen ion concentration by the addition of buffer salts. The buffering of glucose and physiologic sodium chloride solutions in the experience of the authors has served to prevent reactions. The authors have studied, and will report in a succeeding paper, the hydrogen ion concentration of sodium citrate solutions, serums, vaccines and antitoxins, arsphenamin preparations, neoarsphenamin and hypodermic medication in both tablet and ampoule form.—John R. Williams and Madeleine Swett, *Jour. A. M. A.*, 78, 1024, (1922).

CONVENTIONS, CONFERENCES AND MEETINGS

This calendar is published through the coöperation of the National Health Council, 370 Seventh Ave., New York City. The Council will be glad to answer promptly any written or telegraphic inquiries regarding meeting dates in order to avoid conflicts.

May 22-26, American Medical Association, St. Louis, Mo.

May 29-30, Ontario Health Officers' Association, Toronto, Canada.

June 5-7, Central Atlantic States Dairy Food and Drug Officials Association, Buffalo, N. Y.

June 5-7, American Association of Engineers, Salt Lake City, Utah.

June 6-9, Canadian Association for Prevention of Tuberculosis and Canadian Public Health Association, The Royal Hotel, St. John, New Brunswick.

June 21, National Conference of Jewish Social Service, Providence, R. I.

June 22-29, National Conference of Social Work, New Biltmore, Providence, R. I.

June 22-24, American Association for the Advancement of Science, summer meeting, Salt Lake City, Utah.

June 24, Eugenics Research Association, Eugenics Record office, Cold Spring Harbor, L. I.

Biennial Congress on Nursing:

June 26-30, American Nurses's Association, Seattle, Wash.

June 26-30, National League for Nursing Education, Seattle, Wash.

June 26-31, National Organization for Public Health Nursing, Seattle, Wash.

June 27-29, Annual Conference, State Sanitary Officers and Public Health Nurses, Saratoga, N. Y.

June 26-July 1, U. S. Bureau of Education and Child Health Organization, Lake Mohonk, N. Y.

July 4-10, National Education Association, Hotel Plaza, Boston, Mass.

July 4, Association Medical Health Officers of Nova Scotia, Sydney, N. S.

July 17-21, National Dental Association, Ambassador Hotel, Los Angeles.

August 22-25, National Medical Association, Washington, D. C.

August 28-Sept. 2, National Safety Congress, Detroit, Mich.

October 16-19, Fifty-First Annual Meeting, A. P. H. A., Hotel Statler, Cleveland, Ohio.

Foreign Meetings:

May 22-27, International Council of Nurses, Copenhagen, Denmark.

May 31-June 5, Royal Institute of Public Health, Plymouth.

June 6-8, French Dermatological Society, Paris.

July 6-8, League to Combat Infant Mortality (International Congress), Paris.

July 11-13, International Union Against Tuberculosis, Brussels.

July 21-28, British Association, Section on Public Health, Glasgow.

CONTRIBUTORS TO THIS ISSUE

(*Continued from page* 515)

gained an insight into the value of preventive medicine. During the World War he held a commission in the Medical Corps of the Army.

Lloyd E. Jackson's varied experience in chemical engineering includes water and sewage research in the Kansas State Board of Health, high explosive work with the DuPont Company, oil and gas analysis in various positions in Oklahoma, and with the U. S. Bureau of Mines. Since 1920 he has held industrial fellowships at the Mellon Institute, at first on corrosion problems in relation to gas producers, and now on cleaning and dyeing problems.

William V. Becker has been associated with mosquito commissions in Essex County (New Jersey), Nassau County (Long Island), and the Pennsylvania Department of Health. From 1920-22 he was supervisor of sanitation in the Philadelphia Department of Health, and is now in private business. He has made extensive researches in the identification, classification flight, and distribution of mosquitoes, and has prepared a complete key to the larvae and adult females of mosquitoes of the United States, for the use of sanitarians.

Miss Hartley Clarke Embrey, food chemist of the Peking Union Medical College, is an American girl who, before she went to the Far East, was in charge of a staff of 30 chemists in a war-time powder plant at Old Hickory, Tennessee. Late in 1921 she was invited to conduct a food research at the Culion Leper Colony on a remote island in the Philippines. Governor-General Wood is greatly interested in the experiment, and Miss Embrey's recommendations on diet for the lepers will probably be made permanent.

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Vol. XII JULY, 1922 No. 7

TWO TWILIGHT ZONES IN HEALTH ADMINISTRATION

E. R. Kelley, M. D.

Massachusetts Commissioner of Public Health; President, Conference of State and Provincial Health Authorities, 1921-1922

Presidential address delivered at the thirty-seventh annual meeting, Conference of State and Provincial Health Authorities of North America, Washington, D. C., May 15, 1922

In the past twenty years there has been an enormous expansion in the public-health administration field. Vital statistics, control of communicable disease and its accompanying laboratory activities, sanitary engineering and the abatement of nuisances occupied almost exclusively the attention of professional sanitarians twenty years ago. In the province of the communicable diseases, the three greatest problems as measured by the death-rate—syphilis, tuberculosis and pneumonia—only tuberculosis was receiving any consideration. Since then the obligation of health departments towards syphilis has been universally acknowledged and met, and the machinery of our antituberculosis work has grown to vast proportions. Pneumonia still evades effective public-health control. Such subjects as the hygiene of maternity and infancy, cancer, rural sanitation, dental hygiene, nutrition, posture and a number of others have since been added to the duties and functions of public-health departments.

The proceedings of this organization itself during the past two decades definitely reflects this shift of emphasis, this annexation of new territories by the public-health administrator. No longer does the transportation of the dead hold indisputed places as the primary topic of discussion in our deliberations, as was the case for many years within the memory of several in this room. Instead, we witness and participate in active discussions of the best methods of the carrying on by official health organizations of a great variety of activities, as for example, the conduct of health centers, which never concerned the public-health administrators of 1902. It is true that voluntary health organizations have originated the technique of procedure in most of these activities, and that in many of them, the larger share, present effort is still being carried out by voluntary agencies. Nevertheless, the voluntary societies interested in these various types of hygiene, whether general or personal in scope, have been the chief advocates of the transfer of such functions to the official health departments, and in many instances have actively concerned themselves in bringing about such a result. Along with this development has grown a tendency in recent years on the part of sanitarians gradually to increase to a large degree their pretensions as to jurisdiction in the fields of both public and personal hygiene.

If the indisputable axiom that the health of personnel is a fundamental con-

sideration in all lines of human accomplishment is taken as a basis and pushed hard enough, a plausible argument can be found for active interference on the part of the health department in the affairs of all other governmental departments, the processes of industry and commerce, the conduct of social gatherings, the intimacies of family life, even the hallowed rites of the sanctuary. There is undoubtedly a definite danger that health administrators will come to be considered as pests and public nuisances as a result of the blatant campaign carried on in some quarters for the recognition of a quasi-divine right of health departments to regulate everything and everybody except themselves.

The time has come when official health departments should consider carefully these practical questions as to the actual extent of the legal and moral jurisdiction of the health department in modern developments of personal and group hygiene. It is clear that such functions as the control of cases of communicable disease, for instance, are exclusively the duty of the official health department. We cannot conceive of any health department dividing the responsibility for the practical carrying out of scarlet fever quarantine with a "Society for Undernourished Children." It is by no means so clear, however, that certain other health functions, even though distinctly governmental, may not in certain circumstances be more logically and smoothly administered by some other governmental department than the health department. Likewise, it still remains to be seen whether some of our recently recognized health problems, to the solution of which voluntary health societies are now bending their efforts, may not for an indefinite future period be more adequately handled by such agencies, rather than by any governmental departments.

I wish to present for the consideration of the sanitary authorities of the states and provinces who comprise this Conference two of these "border-line" or "twilight zone" public-health subjects which are in many ways closely linked to one another. They represent outstanding examples of the type of subject concerning which there is much opportunity for debate as to whether their future development and ultimate administration will lead toward the official health department or away from it. I refer to the subjects of school hygiene and mental hygiene.

The question of relinquishing the direct administration of one subject, school hygiene, to another governmental department, that of education, not only is, but has been for many years, a controversial matter.

We can scarcely speak of relinquishing the other subject, mental hygiene, to anybody, never having claimed it. This is the first occasion, I think, when this subject has had a place upon the program of this Conference. I believe there now exists in but one state, provincial, county or municipal health department on this continent an officially organized or recognized division of mental hygiene; yet it is apparent upon the most cursory reflection that mental hygiene is for all future time bound to be recognized as one of the greatest, if not the greatest branch of hygiene. The fact that it is largely rooted in the emotional and psychic life has long blinded us to the fact that this is not only a subject of basic importance to the public-health administrator in itself, but in many phases of what is usually considered purely physical hygiene, a satisfactory standard of achievement can never be reached without taking into account the relationship of the emotional and mental life.

Whether the future shall determine that public-health administrators shall carry out practically all phases of school hygiene, or whether they shall rather definitely divide this responsibility with the educators, as seems more logical and more likely, or whether the educators shall gradually push the public-health administrator entirely out of the school room, the school clinic, and even the

school yard, leaving him officially connected with the problem of the school child's health in school hours only by the nearest water main and sewer manhole—which would seem to be the objective of certain educators—cannot as yet be foretold. But whatever happens we health administrators must always maintain a deep, lively, and abiding interest in the problems of school hygiene. Having exercised oversight of the child prior to birth, and having guided him through the health perils of infancy and early childhood, whether we continue that supervision after he passes through the portals of our temples of learning, or share it with the guardians of those temples, or leave him entirely in their hands until he emerges to take his place in the world, the problems of his life and health must continue to be part of our job. Hence we cannot afford not to follow all developments of school hygiene with the deepest concern. The character of the mental and physical supervision which is exercised during these formative years will be directly traceable through our future morbidity and mortality records.

A survey of actual procedure in school hygiene in the United States reveals an astonishing number of methods of administration. There are some states where the obligation seems to have been placed upon state departments of education, and some where very definite duties in relation to school hygiene have been assigned to the state departments of health. A more surprising and disconcerting situation prevails in perhaps a majority of states, caused by the failure of state governments to provide any machinery whatsoever for an intelligent state-wide policy for the physical development and mental hygiene training of the child. It is hardly necessary for me to point out the necessity of differentiating between physical education for which state-wide machinery has now been provided in several states, and school hygiene in the broad sense.

In most states the method of functioning, or the choice of functioning at all, in matters of school hygiene is left in practice almost entirely to the local units of government. I think this is a reasonably fair statement even for states such as my own where the general minimal requirements of school hygiene administration are stipulated by statute because of the failure of the state to provide a mechanism for correlating or supervising the activities of local communities along this line.

In the local political units, cities, towns and school districts, there is much confusion concerning the actual administration of matters pertaining to school hygiene. In some states we find the health authorities of certain cities and towns solely responsible for the carrying out of school hygiene measures, while in nearby cities educational authorities exercise exclusive control. In others it is done on a coöperative basis, each department contributing towards personnel and expense, while in a fourth all too large group neither health nor school authorities are doing anything deserving of serious consideration in the field of school hygiene.

I believe the time has come when it would serve perhaps to clear the issue (I firmly believe nothing could add to the present confusion), if this body representing the official health departments of the states and provinces, could agree upon the fundamental lines of development and administration of school hygiene which it is believed ought to prevail, and then vigorously advocate the adopting and making effective of these policies throughout the length and breadth of America. Certainly with the present lack of coördination and lack of definite objectives on the part of either health or educational authorities, or at any rate lack of mutually accepted objectives, the American child is the loser, and his loss is not a minor or a negligible affair. In hundreds of thousands of instances the failure of the American school child to obtain a proper physical adjustment to his environment, due largely to the lack of a practical uniform policy in matters of school hygiene, spells

the difference between a happy useful adult life and a miserable existence handicapped by chronic physical defect, harassing minor ailment, or under-developed, weak body, unable to withstand the stress and strain of a complex civilization.

The time has passed when there is any valid excuse for mutual working-at-cross-purposes and misunderstanding in this most important public-health field. It is imperative that some generally applicable principles be adopted for the development of school hygiene. This matter will be fully discussed, I hope, before this Conference adjourns. Having called to your attention the essentially "border-line" character of this subject as an administrative problem and its vital importance to the future public welfare, I wish to present the following outline which seems to me to furnish an adequate and fair basis upon which to conduct such a discussion.

I. That the fundamental, basic importance to the life of each individual and to the future strength and prosperity of the two nations here represented of the subject of school hygiene deserves emphasis and wider appreciation.

II. That the direct immediate importance of school hygiene to health officials, educational officials and parents be acknowledged, recognized and emphasized.

III. That omitting many important sub-classifications of the subject, school hygiene looked upon broadly has two great divisions: (a) the health supervision of school children and (b) the health training or physical education of school children. These two terms are not synonymous as some seem to think, nor can the development of one serve as an excuse for neglect of the other, as many otherwise well-informed citizens seem to think.

IV. Since both health administrators and educational authorities must of necessity be vitally interested in the development of school hygiene, it would seem only fair and reasonable that provision should be made by statute in each state that the regulations governing the supervision of the health of the school child should be the business of both health and educational departments functioning as joint boards for this purpose.

V. The individual state or province should decide whether the initiation of such regulations should be vested in the state health and educational authorities, to be administered by the local boards, or whether local boards of health and education should originate such regulations.

The former method would give the great advantage of uniformity of essential practices, the latter method would be more flexible and bring responsibility directly home to those responsible for carrying out the work involved. If the latter principle of local control is to be followed, however, some reasonable arrangement for review and approval by the state authorities ought to be provided to insure against the indefinite continuation of chaos in matters pertaining to school hygiene such as prevails at present largely, at least throughout the United States.

VI. Finally and most debatable of all comes the question of by whom and in what manner the detailed administration of school hygiene is to be carried on in the school; who shall regulate hours of work by medical and nursing personnel in school hygiene, or be responsible for cost of adequate facilities for examination, health files, records, scales, etc.; adjustment of routine physical examinations and inspections of children in relation to teaching hours, and a score of other smaller matters.

It is my opinion that this subject will only develop as it should when two important principles or policies are generally accepted. The first is that the medical health supervision, using that term in the widest possible sense, of the school child, can best be carried out by the health departments.

The second is that everything pertaining to the health education of the child whether formal classroom teaching, teaching of physical health habits, includ-

ing dietary habits, habits designed to foster good mental hygiene or physical education, logically belongs to and should be administered by the educational authorities. To give all the reasons in support of and arguments against these basic propositions which might be brought forward, would lead us too far into detail for an address of this character, and, furthermore, as I have previously indicated, I hope that the subject will be thoroughly discussed during this conference. I wish now to briefly call to your attention the implications of a closely related subject, mental hygiene.

Mental hygiene has been well designated as the last of our great public-health movements to get under way. It is in fact all too little recognized today as a public-health movement.

Still less clearly defined than its essential character in the question of what, if any, governmental departments should be responsible for development and administration of mental hygiene. Although obviously a field far wider than that at present covered by state departments of mental disease, it is possible that such departments could be recast to include not only the function of mental hygiene but to have this serve as the foundation for all their other activities.

On the other hand, in a subject of this character where real success can only be achieved if the principles of mental hygiene are brought to bear upon society during the earliest stages of life, it is by no means certain that the development of this field cannot best be prosecuted through the educational systems, although it is apparent that no state, provincial or local board or department of education is today properly organized or equipped for this purpose.

Since mental hygiene is essentially a health problem, differing from our present well-recognized health problems because it has its being in the emotional and psychic life rather than in the bodily mechanism or environmental circumstance, very strong arguments can be readily adduced in favor of this subject becoming an active portion and a large division in the recognized scope, function and machinery of organization of health departments.

The most significant characteristic of the entire subject of mental hygiene today, however, is that generally speaking neither departments of health, mental diseases nor education officially recognize its existence.

Most commendable work is being done and great interest is being aroused in the subject in the two countries here represented, but entirely by voluntary societies and committees of mental hygiene. Individual members of governmental, psychiatric, educational and health organizations are taking a keen interest in participating in the activities of these voluntary societies, but public opinion has not yet advanced to the point where the obvious next step, the active official participation of one or all of these departments in the work of mental hygiene, has been demanded.*

Because it seems quite clear that such a demand will be made in the near future, the time seems to have arrived when this subject should be given a prominent and permanent place in the deliberations of this Conference. I earnestly recommend that we study this subject, solicit the assistance of representatives of voluntary societies for mental hygiene as advisory committee members, solicit also the coöperation of educational and psychiatric officials, and thereby see if this Conference cannot take the initiative in so shaping the development of this great and important phase of hygiene that the friction and misunderstandings that in the past have sadly marred and delayed the harmonious development of a continent-wide policy of school hygiene may be avoided.

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*In this connection it is interesting to note that since the preparation of this paper two bills have been introduced in the Massachusetts Legislature, one providing for changing the name of the Massachusetts Department of Mental Diseases to the Massachusetts Department of Mental Health, and the other creating a Division of Mental Hygiene in the same Department. These bills indicate a growing recognition of the need for official organized effort along the lines of mental hygiene. The former of these bills has been referred to the next general court by the Legislature, and the other will probable receive a similar reference, but this will at least serve to bring this question before the Legislature again next year.

RECENT APPLICATIONS OF THE PRINCIPLES OF NUTRITION

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DURING recent years the public has been well acquainted with generalities concerning nutrition. For the developing organism, physiologists have long since insisted on provision for growth, energy dissipation (heat and muscular, glandular, nervous and other bodily activities) and energy (fat) storage. Quite a long time ago it was taught that the human body must have protein, carbohydrates, fat, mineral salts and water. The need for salts was explained and clearly exposed and chemical considerations left no doubt in the student's mind as to the necessity for silicon, iron, fluorine and other elements occurring in minute quantities within the tissues.

Then came more definite knowledge of the energy (heat) values of the various food substances, and attention was directed to caloric indices, considerably to the neglect of other essentials.

The next advance consisted in the discovery of a sixth indispensable nutrition group, comprising substances which initiate and continue the growth impulse, and whose absence from the diet results in conditions exemplified by scurvy, beriberi, pellagra, xerophthalmia and cutaneous manifestations. These substances (fat-soluble A and water-soluble B and C), the so-called vitamines or growth-determinants, have received a fair share of the public interest and are being exploited just at present, as any novelties are likely to be.

The widespread and appalling undernourishment reflected by the war upon the children of Europe required rapid and accurate restatement of the principles of nutrition. The first response was a comparison, by experts and commissions, such as the Inter-Allied Scientific Food Commission, of daily nutritional needs as expressed in calories. Estimates of the daily ration, made on a basis of minimum cost consistent with bodily maintenance, inevitably included provision for the necessary fuel constituents, elements and compounds, protein and vitamines. Undernutrition and malnutrition demanded definition. Methods required resurvey. Post-war conditions in Europe exacted this revision *pari passu* with the establishment of child-labor laws and standards in America.

The question of bodily measurements arose. Various tables of height and weight were found to exist. In France and Belgium there were the figures of Bertillon, de Ley, Quetelet, Variot and Chaumet, Bouchaud, Comby and Sutils, Binet and Carlier. In England there were tables based on different school groups, and those of Roberts and anthropometric associations. Italy furnished data derived from the studies of Pagliani, Ricardi, De Giovanni, Viola and Frasetto, not to forget the primary impulse imparted by Lombroso. Germany offered the work of Rubner, Henning, Daffner and others, while suppressing certain statistics and recommendations made by her advisers. America had been depending on tables by Bowditch and Rotch. Most of the tabulations were fairly in accord when referring to the same ages, but some of the age-groups had not been sufficiently studied.

The United States Children's Bureau, confronted from the inception of its labors with the necessity for standards, practically recognized in 1918 the lack in America of dependable data on child

measurements. This it did by proclaiming the year 1918 a "Children's Year," and initiating a program devoted to the registration of weights, heights and other information referring to children distributed all over the United States. Some 15,000 children were weighed and measured. The figures obtained were fairly acceptable, although considered to be too high, since they probably represented an undue proportion of the more vigorous and well-developed children.

The United States Bureau of Education published data supplied by Dr. Thomas D. Wood who states that 20 per cent of American school children show evidence of malnutrition. He considers that a child 10 per cent below the normal weight for his height should be regarded as under-nourished. Dr. William P. Emerson gives 7 per cent under-weight as the normal limit. The Illinois Child Labor Law of July, 1917, tentatively provided for the fourteen year old child a standard of 80 pounds (36.36 kilograms) for weight and 56 inches (140 centimeters) for height. This standard was afterward lowered to 75 pounds (34.10 kilograms) weight, and 55 inches (137.5 centimeters) height. The latter figures may be considered to be somewhat below the normal, but are workable and represent the minimum consistent with normal health. (Standards of Child Welfare, p. 87.)

The several American organizations interested in the European child welfare situation have been obliged to consider all standards available for determining the state of nutrition in children for whom their resources have been enlisted.

This acute, almost painful, interest in nutrition is likely to be of long duration. For the next twenty years, at least, no questions will be of greater public importance than those related to food and growth. The production and maintenance of a vigorous population at minimum cost will be a problem which no nation can afford to neglect.

A suggestive scheme of nourishment of children en masse has originated in Vienna with Dr. Clemens Pirquet. Some of his theories, as developed in his "System of Nutrition," have proved exceedingly useful to the American Relief Administration, which has had most extensive experience in European child feeding. The impulse for these new suggestions was imparted by Rubner's theorem on the proportion existing between energy expenditure (and, therefore, food intake) and the external surface of the body.

However, before considering Pirquet's scheme, brief reference should be made to the Rohrer formula, which was used in Germany. This formula was employed by the American Friends Service Commission in their German child-feeding program. It is now chiefly of interest historically, since it led to confusion and had to be abandoned. The American Relief Administration also had experience with this formula, and writes:

"This Rohrer Index . . . occupies the same position in German child-feeding circles that the Pelidisi System occupies in Austria. . . . In using the system in our own child feeding in Danzig we found some peculiar results; for instance, numerous children after a period of regular feeding showed a poorer index than they had given previously, due to the fact that they had, either because of the feeding or simultaneously with it, started to grow, with the result that the Rohrer index, due to their increased height, required of them a greater increase in weight than they were able to show, while, as a matter of fact, their general condition had improved perceptibly and their eligibility for feeding had hence decreased."

According to the Rohrer formula, which includes the total height of the individual,

$$\frac{\text{Weight times } 100}{\text{Height cubed}} \text{ equals the state of nutrition.}$$

The quotient must be compared with a table of norms, which vary according to sex and age. For example, the normal indices for 6 and 15 years are, respectively, for boys, 1.583 and 1.251; for girls, 1.551 and 1.185.

Pirquet discusses food relation with reference to the absorbent surface of the intestine, depending on Henning's statement that the length of the intestine is equal to about ten times the body-height measured in the sitting position. The literature further shows that the transverse intestinal circumference, taking variations in tension into account, may be fairly stated as one-tenth of the sitting height. Therefore, if L equals the length of the intestine and Si the sitting height,

$$\text{Intestinal surface equals 10 Si times } \frac{Si}{10} \text{ or } Si^2$$

This relation, expressed in centimeters, holds good for any age.

Pirquet's studies lead to further derivations (*Lehrbuch der Volksernährung,* pp. 174 et seq.). The sitting height in centimeters, raised to the third power (Si^3), is stated to be about equal to 10 times the body weight. This equivalent is expressed by the symbol Ge, from the German *Ge*wicht, weight. It follows that the relations between weight, sitting height and intestinal surface may be thus expressed:

Cube root of Ge equals Ge to the one-third power, or Si (Cube root of Ge)^2 equals Ge to the two-thirds power, or Si^2, or the equivalent of the intestinal surface.

We have thus a fundamental formula for approximately expressing a given condition of nutrition. Variations are practically negligible. The inventor first used the symbolical word "Gelidusi" to express nutrition-state, deriving it thus: *Ge*wicht zehnfach *li*near durch Ziehen der dritten Wurzel dividiert *du*rch *Sitz*höhe. He now prefers the word "Pelidisi," deriving it from the Latin, thus: *P*ondus *de*cies *li*nearis *di*visio *se*dent*is* altitudo.

The complete formula, applicable to human beings of all ages, is:

Pelidisi (*Gelidusi*), or nutrition-state, equals

$$\frac{\text{cube root of (ten times body weight)}}{\text{sitting height in centimeters}}$$

For adults and well-conditioned nurslings the quotient should closely approximate 100. For growing children it is about 94.5. Variations may range from 81 to 109. Figures above 100 show overfeeding. Figures below 94.5 indicate undernourishment. In the practice of the American Relief Administration, an index of 92 or below indicates supplementary feeding. For rapid use by persons not technically trained, a table is given in the *System of Nutrition,* Volume II, p. 288.

This formula was devised for practical use in emergency feeding. It indicates broad outlines. Every physician knows that undernourishment may depend on a wide variety of causes; that more than one cause may coexist in the same individual, and that many cases cannot be cured merely by supplying food. Diagnosis and indicated treatment are always indispensable. Pirquet himself clearly recognizes this truth and applies an additional formula referring to bodily conditions.

In this formula the nutrition state is indicated by the diagrammatic word "Sacratama," with modifications. It is derived from the Latin words *s*anguinis (quality of blood), *cr*assitudo (condition of the subcutaneous fat), *t*urgor (tension in the skin produced by the water-content) and *m*usculus (muscular development). Intensity of these four qualities is shown by combining the vowels with the above-mentioned letters; *a* stands for normal, *e* for abundant, *i* for excessive, *o* for reduced and *u* for slight. For example, Sacratama indicates a normal condition of the four qualities; Socretemo would indicate pallor, increased fat, increased skin-tension and weak muscles.

Mowatt M. Mitchell, of the American Relief Administration, writes: "As to the Pelidisi System, we have found it eminently satisfactory, chiefly in that it very

largely removes the human element in, and the varying viewpoint taken by, individual examining physicians. We have given it more extensive use naturally in the Austrian operation than anywhere else, and have, in fact, based our entire child-feeding operation in that country on this system of examination, supplemented to a slight degree with . . . the Sacratama System."

The principal theorem of Dr. Pirquet, to which the previous discussion is somewhat preliminary, is elaborated in his Nem system, so-called, from the words *N*ahrungs *E*inheit *M*ilch (nutrition unit milk). By means of this system, Dr. Pirquet, basing it on milk as the unit, has endeavored to construct a nutrition scale which everyone can readily understand.

He mentions difficulties in the practical application of food values expressed by means of the calorie, such as inexactness, confusion between the terms "large" and "small" calorie, failure to discriminate between ingested and utilized calorie values (gross and net calories), and uselessness for the physician, cook and problems of mass feeding.

The calorie system is declared by his associates to belong in the laboratory, but not in life, and to be suitable rather for general theory. Claim is made that the Nem system is easily grasped, just as color is identified by comparison and not by words or symbols; the Nem estimate is derived from the calorie as the metric system is derived from the meridian. However, the superiority of the Nem system is not universally conceded.

The essentials of the system are three, viz., relation to height and weight, statement of the values of the various foodstuffs in terms of milk, and recognition of the bodily demand for protein and vitamines.

Milk is chosen as the unit-substance because it is an ideal union of tissue-building and energy-yielding foods. The unit, or Nem, is 1 gram of mother's milk, a litre of which supplies 667 calories by oxidation in the human tissues. The typical milk contains protein 1.7 per cent, fat 3.7 per cent, sugar 6.7 per cent. Differences between cow's milk and human milk are disregarded in practice. The Nem unit is based on the calorie, as stated above. A net calorie is practically equivalent to 1½ Nem.

The scale is completed metrically:

10	nem equals 1 dekanem or 1 Dn
100	nem equals 1 hektonem or 1 Hn
1000	nem equals 1 kilonem or 1 Kn
1000	kilonem equals 1 tonnenem or 1 Tn
0.1	nem equals 1 decinem or 1 dn
0.01	nem equals 1 centinem or 1 cn
0.001	nem equals 1 millinem or 1 mn

Maximum, minimum, optimum. The maximum of food per day is taken as the total quantity absorbable in 24 hours by the healthy intestine. It is equivalent to 1 nem per square centimeter of the absorbent intestinal surface. It is thus placed in direct relation with the proportions of the Pelidisi formula (maximum equals Si^2 nem or 10 decinem Si^2). The minimum is the quantity indispensable for bodily activities during rest. It is equivalent to 0.3 Si^2 decinem.

The optimum, or quantity desirable for the individual, has a wide range and cannot be determined absolutely. It depends on variations in height, weight, work performed, state of health and other factors. For an adult not engaged in very hard labor, the optimum will lie between 4 and 6 decinem times Si^2. For the reckoning of rations, the range between the infant and the adult engaged in hard labor is divided into 9 classes, the scale giving 10 hektonem for the nursling, intermediate figures for the intermediate classes and 50 hektonem for the hard-working adult. (*Lehrbuch fur Volksernährung,* pp. 164, 166.)

Protein. Ten per cent of the total daily demand in nem (not in weight) required by older children and adults is the optimum of the protein need. The minimum is a little lower, the maximum 20 per cent. It should be remembered that 1 gram of protein yields 5.7 calories as

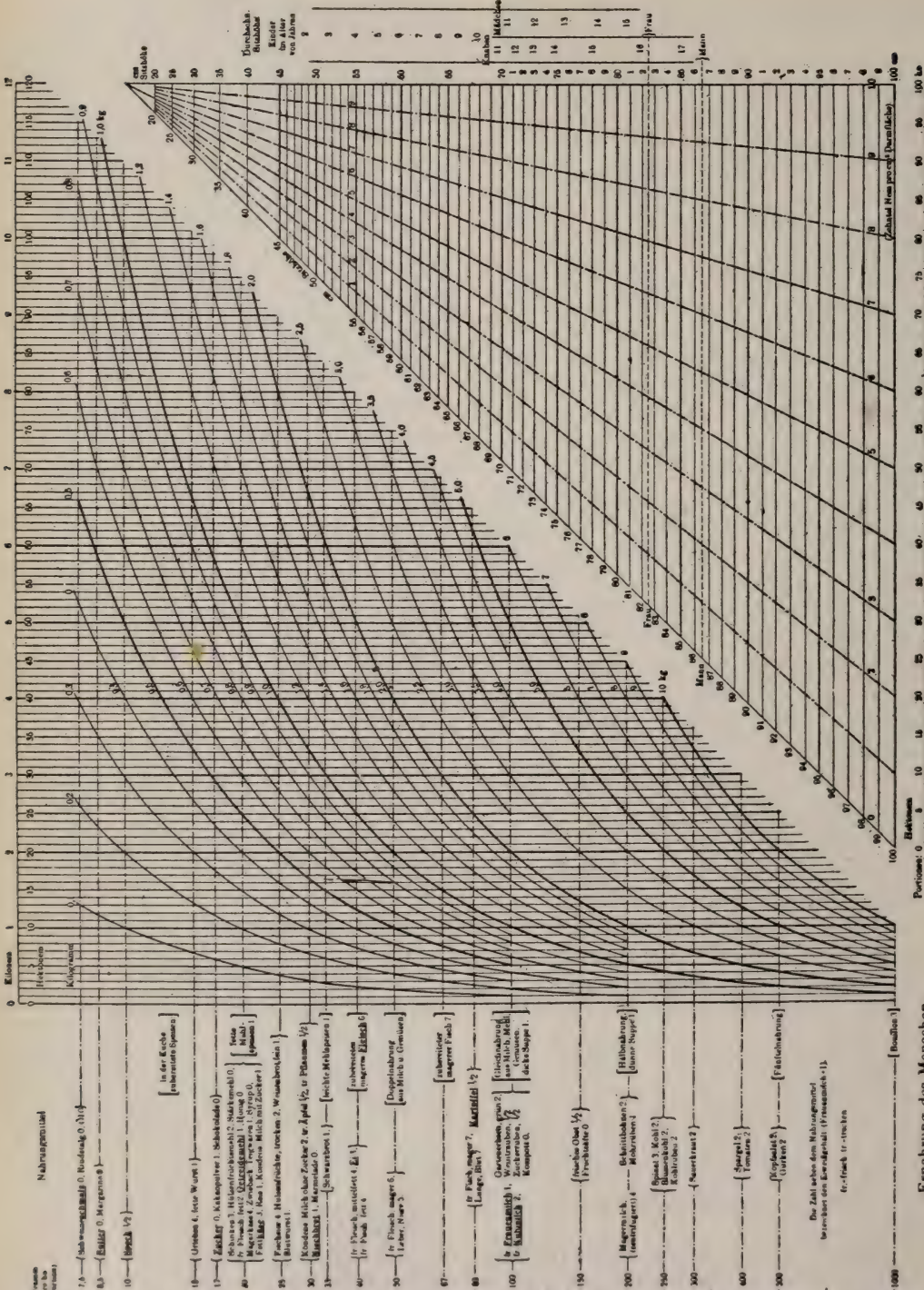


FIGURE 2
PIRQUET'S NUTRITION TABLE
(*From Grundzüge des Nemsystems*, p. 172)

consumed in the calorimeter, and but 4.1 calories as oxidized in the tissues (Rubner).

For rapid application various tables, and other devices have been prepared. (See Figures 1 and 2.) Concerning the Nem system, Mr. Mitchell (*vide supra*) writes that it "has no technical nor scientific value over the calorie system except that in European countries where the metric system is in vogue it is a simple and satisfactory method of calculating rations for mass feeding where a considerable number of various commodities are in use. . . . For use in America an adaptation would, of course, have to be made in the nomenclature . . . since terms hektonem, kilonem, tonnenem, etc., would not apply in a country where the metric system is not in vogue."

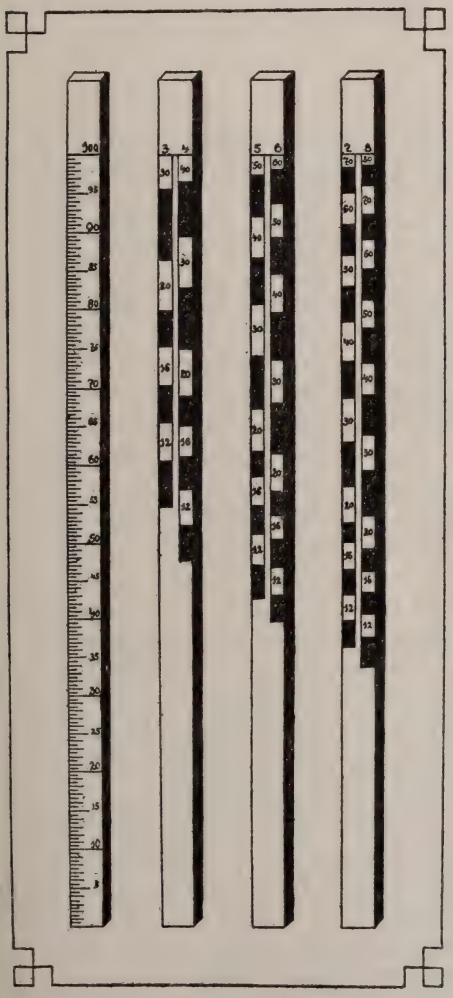


FIGURE 1
PIRQUET'S SCALE
Front and Side Views
(*From Grundzüge des Nemsystems*, p. 165)

Natural limitations for the use of this system undoubtedly exist. However, it constitutes an excellent working plan for the handling of large groups, and no better system of the kind has been devised for the extensive food deficiencies of the present critical period. Should the American Relief Administration be called upon to extend its activities to Russia, China, India or any other region suffering from widespread famine, the natural consequence would be employment of this system for speedy relief of the afflicted population. No country can afford to be unaware of the method.

Scope of its application may be shown by practical examples:

1. For the feeding of woodcutters, black bread is the only foodstuff available. How much per day is necessary to sustain each laborer?

2. A man 40 years of age, 90 centimeters sitting height and sedentary occupation, consumes 5 eggs and 2 litres of milk, per day. Is he properly nourished?

3. Four hundred and ninety-five thousand portions of 1 kilonem each must be shipped by rail, consisting as follows:

Flour	400 tonnenem	Bacon	70 tonnenem
Sugar	15 tonnenem	Apples	10 tonnenem

How many freight cars must be provided?

4. During the war the monthly supply of an officers' hospital was:

	Kilograms		Kilograms
Bread	465.5	Eggs	12.5
Meat	405.0	Cheese	11.5
Fat	39.0	Butter	3.8
Sugar	115.0	Milk	185.0
Flour	85.0	Marmalade	21.0
Brown sugar	42.5	Prunes	15.0
Beans	28.0	Barley	3.0
Zwieback	20.0	Corn meal	75.0
Potatoes	318.0	Fish	3.0

This supply lasted for 939 duty-days. Was it too much or too little?

The solution of problem 1 is appended for illustration:

As optimum, 7 decinem squared are taken, this allowance being fair for laboring adults. The average sitting height of the workmen proves to be 88 cm. On the food rule, and in the column used for 7 decinem squared, 88 cm. corresponds to 54 hektonem (5400 nem). The nemgram table shows that 5400 nem in black bread correspond to 1800 gm.

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REPORT OF COMMITTEE ON STANDARD METHODS FOR THE BACTERIOLOGICAL EXAMINATION OF SHELLFISH

Presented at the Annual Meetings of the American Public Health Association, New Orleans, October, 1919, and San Francisco, September, 1920, approved by Prof. Frederic P. Gorham, referee, and adopted by the Laboratory Section

OYSTERS IN THE SHELL

Collection of Sample.—At least twelve oysters of the average size of the lot under examination, with deep bowls, short lips and shells tightly closed, shall be selected and prepared for transportation to the laboratory.

As complete a record of such data as it is possible to obtain shall be made, covering the following points: the exact location of the bed from which the samples have been collected, the depth of water over the bed at time of collection, the state of the tide, the direction and velocity of the wind, other weather conditions, the day and hour of removal of stock from the water, the conditions under which the stock has been kept prior to the taking of the sample, provided that the sample was not taken for laboratory testing directly from the water, and the conditions under which sample was kept between time of collection and of examination.

Transportation of Sample.—The oysters so selected shall be placed in a cloth bag or other suitable container, which shall be marked for identification. If the oysters are analyzed the same day as collected no icing is necessary. If kept for a longer period, either in transit or in the laboratory before examination, they shall be iced in such a manner as to prevent mixing the ice water with the oysters. At all times they should be kept in as cool a place as is convenient.

Condition of Sample. — The analyst shall make a record of the general condition of the oysters before the analysis of the sample, as to whether the shells are open or closed, and as to the presence of any abnormal odors. No oysters from which the shell liquor has escaped shall be used for examination.

Technical Procedure. — The bacteriological examination shall be started as soon as possible after the receipt of the sample. The oysters shall be thoroughly cleansed by scrubbing with a stiff brush and clean running water, and dried. The edges of the shell shall be sterilized by passing through a flame or by burning with alcohol. The oysters shall be opened by an oyster knife which has been steril-

ized by flaming. The shell liquor of at least five oysters shall be collected aseptically in a sterile wide-mouth bottle, the oysters being drained until the shell liquor ceases to run away freely.

Five 1 c.c. portions of the composite sample of shell liquor obtained by draining from five to twelve oysters, and five 1 c.c. portions of 0.1 and 0.01 dilutions of the composite liquor shall be placed in fermentation tubes containing standard lactose broth. The water used for dilution purposes shall be either sterile sea water or sterile tap water containing 2 per cent sodium chloride.

The fermentation tubes shall be incubated for two days at 37° C. Upon the formation of gas confirmatory tests shall be made in accordance with the standard methods of water analysis. From the fermentation tubes showing gas transfers shall be made on Endo or litmus lactose agar plates. Characteristic types of B. coli colonies shall then be transferred to a second lactose broth fermentation tube and to a slant agar tube. From the agar slant a microscopic examination shall be made to show the organism in a non-spore forming bacillus.

Bacterial Counts.—It is recommended that the determination of the total number of bacteria present in the shell liquor be discontinued.

OYSTERS REMOVED FROM THE SHELL (OPENED OR SHUCKED STOCK)

Collection of Sample.—The stock in the container from which the sample is to be taken shall be thoroughly mixed by shaking and stirring, and at least one-half pint of the sample placed in a sterile wide-mouthed jar by means of a ladle or other implement sterilized by flaming, alcohol being usually the most convenient material for use in the field. The jar shall then be tightly stoppered.

Transportation of Sample.—When the time between collection of the sample and its examination shall exceed three hours, or if the outside temperature is above 50° F., the sample shall be kept cool by means of ice placed around, but not in the sample jar.

Technical Procedure. — Two hundred c.c. of sterile 2 per cent salt solution shall be placed in a sterile container and oyster meats added sufficient to bring the water level up to the 400 c.c. graduation mark on the container. A stoppered Erlenmeyer flask, glass jar, or other container which can be easily sterilized, and on which the graduation may be plainly marked, may be used.

The contents of the container shall be thoroughly shaken and the watery fluid used for the determination of B. coli as detailed for the examination of the shell liquor of oysters in the shell.

As the oyster meats are diluted with an equal quantity of saline solution the result shall be multiplied by two for a score.

EXPRESSION OF RESULTS—SHELL AND SHUCKED STOCK

The results of the bacteriological examination for B. coli shall be expressed by the following arbitrary numerical system, known as the AMERICAN PUBLIC HEALTH ASSOCIATION Method of Scoring Oysters.

If desired, the higher dilutions may be run for shucked oysters and for shell stock. In this case a 0.001 dilution has a positive value of 1,000 and a 0.0001 dilution of 10,000, and so on.

The presence of B. coli in each fermentation tube, if confirmed, is to be given the following values, which represent the reciprocals of the greatest dilutions in which the test for B. coli is positive:

If present in 1.0 c.c. but not in 0.1 c.c., the value of 1.

If present in 0.1 c.c. but not in 0.01 c.c., the value of 10.

If present in 0.01 c.c. the value of 100.

The addition of these values for the five fermentation tubes gives the total value for the sample and this figure is the score, the tube representing the great-

est dilution for each set being counted.

The results are expressed in the following tabular form:

RESULTS OF TESTS FOR B. COLI IN DILUTIONS INDICATED:

Fermentation Tubes	1.0 c.c.	0.1 c.c.	0.01 c.c.	Numerical Value
1	*	*	0	10
2	*	*	0	10
3	*	0	0	1
4	*	0	0	1
5	*	0	0	1
				—
				Score: 23

*=positive, confirmed B. Coli in fermentation tube.
0=negative, B. Coli absent.

Sometimes results similar to the following are obtained; that is, one or more tubes may show positive results in small quantities of shell water while other tubes may show negative results in larger quantities. In this case a recession of values is made and the next lower numerical value is given to the positive result in the high dilution and such positive result is considered as being transferred to a lower dilution giving a negative result in another set of tubes.

As examples of the method of obtaining the score, the following tables are given:

RESULTS OF B. COLI TESTS IN DILUTIONS INDICATED:

Tubes	1.0 c.c.	0.1 c.c.	0.01 c.c.	Value
1	*	*	0	10
2	*	*	0	10
3	*	*	0	10
4	*	0	0	10
5	*	*	*	10
				—
				Score: 50

Tubes	1.0 c.c.	0.1 c.c.	0.01 c.c.	Value
1	*	*	0	10
2	*	*	0	10
3	*	*	*	100
4	*	*	*	10
5	*	0	0	10
				—
				Score: 140

Respectfully submitted,

PAYN B. PARSONS, M. D.,
Chairman.

R. B. FITZ-RANDOLPH,
PROF. FREDERIC P. GORHAM,
HERBERT D. PEASE, M. D.,
LESTER A. ROUND, Ph. D.

REPORT OF COMMITTEE ON REGISTRATION AFFAIRS

Read before the Vital Statistics Section of the American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 17, 1921, and adopted by vote of the Section.

DEATH REGISTRATION

The death registration area now includes 34 states, the District of Columbia, the Territory of Hawaii, and 17 cities in non-registration states, and relates to 82.3 per cent of the population of the United States.

The additions to this area since the last report are Delaware and Nebraska, and the city of Fort Worth, Texas.

The only states without adequate registration laws are Arizona, Nevada, and South Dakota, the Model Law having been enacted in Iowa and West Virginia.

BIRTH REGISTRATION

The birth registration area now includes 27 states and the District of Columbia, representing 65.3 per cent of the total population of the United States.

The additions to this area since the last report are Delaware, Mississippi, Nebraska, New Jersey, and Oregon.

WILLIAM H. DAVIS, M. D., *Chairman.*
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MILK INSPECTION*

(Chapter from the Forthcoming Report of the Committee on Municipal Health Department Practice)

SOME measure of control of the sanitary quality of the milk supply is exercised by all American cities of 100,000 population and over, but it is surprising to find that pasteurization is not yet general except in the larger cities, and that only 31 out of 83 cities studied have a grading system. Systematic supervision, as we might expect, is most highly developed in the larger cities which reach out over a larger area for their supply.

To provide a safe milk supply is a public-health problem which concerns almost every home. New York estimates that it consumes over 4,000,000 pints of milk daily, a per capita consumption of over 0.71 pints; while the average per capita consumption in 1920 for 68 of the cities under study was 0.66 pints per day.

ORGANIZATION

In 35 cities milk control is under the division of foods; in 8 under a separate division of milk and dairies; in 4 under a division of milk and meats; in one city, Minneapolis, under a bureau of public health inspection, and in the other 35 cities the work is handled by the health officer himself or by a subordinate directly responsible to him. In Denver, Colo., milk inspection is carried on by city and county administration in coöperation.

PERSONNEL

Practically all of the larger cities employ both veterinarians and inspectors for this work, but in the cities of under 250,000 population, where milk inspection is not so complete, less than half employ both veterinarians and inspectors, either on part- or whole-time basis. Forty-five cities employ veterinarians and inspectors; 4 employ veterinarians only, and 29 inspectors only. For five cities there was no statement.

In the first group, Pittsburgh, and in the second, Newark, Kansas City, Mo., and Jersey City, are the only cities not employing veterinarians for milk inspection (we have no statement for Rochester), while in the third group about half the departments (29) upon which we have data report veterinarians on their inspection staff. In 12 cases, Cleveland and Minneapolis of the larger cities, and Akron, San Antonio, Dayton, Paterson, Nashville, Jacksonville, Norfolk, Salt Lake City, Savannah, Tacoma and Schenectady of the smaller cities, veterinarians are reported as part-time employees. In some instances, notably San Antonio and Dayton, they give a part of their time to the milk inspection work and the rest to some other form of inspection, such as that of meat, in which case they are, of course, whole-time employees of the cities.

The usual number of veterinarians employed by any city is one or two, although Columbus reports six and Washington, D. C., seven; the average number for the entire 78 cities reporting is 1.0. About one-fourth of these are part-time employees. We find that, per capita, the smaller cities are better provided with veterinarians than the larger ones, as shown in the following table:

From Table I it will be observed that while the largest cities have the greatest number of inspectors (New York employs 29, Chicago 28, Baltimore 21), on a population basis this is not the case, nor do the groups vary directly in this regard. Milk inspectors are employed in all but 4 of the 78 cities for which we have complete data on this subject and in these 4 cities, Akron, Reading, Canton, and San

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TABLE I

CLASSIFICATION OF MILK INSPECTION PERSONNEL BY CITIES OF DIFFERENT POPULATION GROUPS, 1920

CITIES	No. of Cities	VETERINARIANS		INSPECTORS	
		No.	Per 100,000 Population	No.	Per 100,000 Population
All cities	78	79	.28	353	1.25
500,000 and over	12	16[1]	.10	168[4]	1.03
250,000 to 500,000	12	19[2]	.44	75[5]	1.76
Under 250,000	54	44[3]	.58	110[6]	1.47

[1] 2 part time
[2] 1 part time
[3] 16 part time
[4] 4 part time
[5] 11 part time
[6] 12 part time

Diego, all of which are in the third group, the health officer, assisted by one veterinarian, attends to the inspection of milk. Practically all milk inspectors are on full time.

Clerical assistance outside of that furnished by the administrative division is supplied to milk inspectors in the larger cities only.

EXPENDITURES

It has been difficult to ascertain the expenditures for milk control since in many instances this work is carried on under some other division, such as that of foods or laboratories, and the financial data are not separable. Only 4 cities of the first group, Detroit, Cleveland, Los Angeles and San Francisco, one city of the second group, Washington, and 21 cities of the third group, had complete data on this subject. We find that for these 26 cities Columbus, Ohio, spends the largest amount with $0.131 per capita, and Wilmington, Del., the least, with $0.014 per capita, the average for the entire group being $.044.

FIELD CONTROL

Producing Farms

The extent of the problem of supervision at the source is illustrated by the fact that 54 cities average 621 farms per 100,000 population supplied. A study of Table II indicates that health departments made an average of 1.3 inspections of these farms annually, the figure for the larger cities being a trifle higher than this average. This table also shows that only about four-fifths of the farms inspected are scored. In many cases it is difficult to say how extensively producing farms are inspected. In Philadelphia, for instance, only six farms within the city limits are inspected, while many cities demand that all their producing farms within the state be inspected by city officials.

Detroit, Houston, Columbus, Indianapolis, and Scranton plan to make semi-annual inspections, while in 7 cities of the first group, 7 cities of the second group, and 20 cities of the third group, the inspections are supposed to be more frequent, and in 13 cities one inspection a month is the ideal. Actually, as indicated in Table II, inspections are made about once a year on the average.

Sixty-three cities out of 80 reporting state that their producing farms are scored, while it will be noted from the above table that 43 out of this group of 54 cities report such a procedure.

With few exceptions the score card of the United States Department of Agriculture is used. Baltimore, Pittsburgh, Washington, Jersey City and the cities of New York state use a modified score card. Fall River uses one made out by the health officer. Omaha and New Haven use a special form, and Youngstown uses the Ohio State University score card.

TABLE II

HEALTH DEPARTMENT SUPERVISION OF MILK INSPECTION AT PRODUCING FARM, 1920

CITIES	No. of Cities	No. Farms Per 100,000 Population	No. Annual Inspections Per 100,000 Population	Inspections Per Farm Per Year	No. Cities Scoring Farms
All cities	54	621	854	1.3	43
500,000 and over	7	638	933	1.4	7
250,000 to 500,000	8	473	693	1.4	7
Under 250,000	39	673	835	1.2	29

As to the average dairy score for the year, our information is very meagre; in the first group it ranges from 52 to 76, and for the rest of the cities it does not differ greatly from these figures. Producing farm scores are not published in any of the larger cities except Washington, where they appear in the health department pamphlet. In the smaller cities it is a more common practice to publish or post the scores, and in Oakland, San Antonio, Salt Lake City, Kansas City, Kan., Duluth, and Oklahoma City, they are printed in the newspapers monthly or quarterly, while in Providence, Richmond, New Haven, Dayton, and Norfolk, they are published monthly or quarterly in the health department bulletin or in the annual report. In Elizabeth, they are posted monthly and in Oakland they appear both in the newspaper and the health department publication.

MILK DEPOTS

The average number of milk depots per 100,000 population for the 50 cities reporting on this question is 14.2, the cities of 250,000 to 500,000 population having the lowest relative number in this regard. Table III shows the average number of milk depots and inspections per 100,000 population, as well as the number of cities in which milk depots are scored. In some places loading platforms and stores are considered as milk depots, but for the purpose of this survey we have considered as milk depots only those places where milk is handled for distribution on a large scale, such as pasteurizing plants, etc. The classes of milk depots in Chicago, for example, are: 1. Plants in which pasteurization alone is carried on. 2. Plants bottling the milk. The milk is received, taken to a pasteurization plant and then returned to the station and bottled. 3. Plants in which the milk is received, pasteurized and bottled in one place.

The frequency of inspections varies greatly. In the larger cities inspections are made at least weekly. In Baltimore they are made four times a week, and in Los Angeles and Boston, daily. For the second group of cities the procedure varies from daily to once a year. Only 15 of the smaller cities inspect weekly or

TABLE III

HEALTH DEPARTMENT SUPERVISION OF MILK DEPOTS IN CITIES OF THE UNITED STATES, 1920

CITIES	No. Cities	No. Milk Depots per 100,000 Population	No. Inspections per 100,000 Population	No. Inspections per Milk Depot	No. Cities Scoring
All cities	50	14.2	519	36	32
500,000 and over	6	14.8	572	38	5
250,000 to 500,000	5	6.8	279	41	3
Under 250,000	39	15.9	532	33	24

oftener, the majority reporting monthly or semi-annual inspections.

The re-sale of condemned milk is prevented in various ways; in Detroit, rennet is added, in several other cities some form of coloring matter is put into the milk. Still other cities tag the cans "condemned" and send them back to the shipper, while the rest simply dump the condemned milk.

TEMPERATURE REQUIREMENTS

Some rules in regard to temperature are in force in practically all the cities studied, and 55 of the cities have regulations of this type covering farms, transit, milk depots and delivery. As indicated in Table IV, milk depot standards are most severe (in 65 per cent of the cities 50° F. and under); next delivery standards (60 per cent 50° F. and under); then transit standards (52 per cent 50° F. and under); while on the farms only 51 per cent of the cities require a temperature of 50° F. and below. The regulations of the larger cities are naturally more rigorous than is the case for the cities of the two groups under 500,000 population; doubtless because the milk must be brought from a greater distance than in the smaller cities. This situation is shown in Table IV, which indicates that 90 per cent of the large cities require a temperature of 50° F. or less at milk depots, as contrasted with 66 per cent of the cities of the second group and 58 per cent of those in the third group.

Chicago, and some of the California cities have a standard at the milk depots of 45° F., or even lower in the case of Los Angeles. Philadelphia, Milwaukee, Newark, Portland and a few of the cities in the third group allow a temperature of 60° F. or even higher. At the farms and in transit the requirements are even more lenient. Philadelphia, Detroit, Baltimore, Pittsburgh, and Los Angeles of the first group, and Milwaukee, Seattle, Portland, and Denver of the second group, and Memphis, Grand Rapids, Salt Lake City, Reading, Kansas City, Kan., and Tacoma of the third group allow a temperature in transit of 60° F., while Toledo, Columbus, Oakland, Akron, Youngstown, and Fort Worth (all cities of 250,000 or under) allow a temperature as high as 65° F. San Antonio, Oklahoma City, Canton, and San Diego allow a temperature of 70° F., while seven cities, Washington, New Orleans, Indianapolis, Providence, Nashville, Camden, and Wilmington, report no requirements.

MEDICAL CONTROL

Only 17 of the cities under consideration require a physical examination of persons handling milk. Detroit is the only city of the first group which makes a routine examination of all milk handlers. The usual procedure for these cities consists in having the persons who handle certain grades of milk undergo an examination. New York, for example, requires physical examinations for handlers of Grade A raw and pasteurized milk. In St. Louis all employees of dairymen selling their own milk are examined, as are all those selling Grade A and certi-

TABLE IV

TEMPERATURE REQUIREMENTS (FAHRENHEIT) FOR DIFFERENT GROUPS OF CITIES, 1920

CITIES	No. of Cities	At Farms			In Transit			At Milk Depots			On Delivery		
		45° and under	50°	55° and over	45° and under	50°	55° and over	45° and under	50°	55° and over	45° and under	50°	55° and over
All cities	55	1	27	27	0	29	26	2	34	19	0	33	22
500,000 and over	10	1	5	4	0	6	4	2	7	1	0	8	2
250,000 to 500,000	6	0	2	4	0	2	4	0	4	2	0	3	3
Under 250,000	39	0	20	19	0	21	18	0	23	16	0	22	17

fied milk in Cleveland. In Philadelphia and the other Pennsylvania cities there is a regulation requiring that food handlers when in the city shall be examined physically twice a year and present certificates of health. In San Antonio a physical examination of all handlers every six months extends to all producing farms, and all employees must have health cards. Dayton requires examinations of all milk handlers except individual producers.

There is even less uniformity in the practice concerning employees in the pasteurization plants. In St. Paul, Syracuse, Hartford, Lowell, and Duluth all persons employed in pasteurization plants undergo an examination; while in Indianapolis all milk handlers except the group employed in pasteurization plants are examined.

Briefly, a fairly complete physical examination of milk handlers is said to be required in 6 of the larger cities: New York, Detroit, Cleveland, St. Louis, Boston, and Baltimore, 1 city of the second group, Indianapolis, and 10 of the cities under 250,000 population, St. Paul, Syracuse, Richmond, Dayton, San Antonio, Hartford, Albany, Lowell, Duluth, and Flint. In Cleveland, Columbus, Nashville, and Schenectady an examination of the suspicious cases only is required.

A routine attempt to detect disease carriers is made in only 24 of the cities studied. In 6 of the first group, New York, Chicago, Philadelphia, Detroit, Cleveland, and Buffalo, 2 of the second group, Washington and Cincinnati, and 16 of the third group (Toledo, Columbus, Birmingham, Syracuse, New Haven, Memphis, Bridgeport, Hartford, Springfield, Nashville, Norfolk, Albany, Spokane, Elizabeth, Utica, and Schnectady), there is routine machinery for detecting and excluding these cases. Emergency work, for instance, when there is an epidemic, is carried on in 20 cities, 3 of the first group, Boston, Baltimore, and Pittsburgh, 6 of the second group, New Orleans, Minneapolis, Indianapolis, Jersey City, Rochester, and Denver, and 11 of

TABLE V

LABORATORY CONTROL OF MILK SUPPLIES IN DIFFERENT GROUPS OF CITIES, 1920

CITIES	No. of Cities Reporting	FREQUENCY OF COLLECTION										Average Monthly Samples per 100,000 Population
		At Farms			In Transit			At Milk Depots			On Delivery Wagons			
		Monthly	Less Often	None	Monthly	Less Often	None	Weekly or Oftener	Less Often	None	Weekly or Oftener	Less Often	None	
All cities	74	8	28	38	16	11	47	22	39	13	23	46	5	137[4]
500,000 and over	11	1	2	8	3	2	6	3	7	1	5	6	0	135[1]
250,000 to 500,000	12	1	8	3	1	6	5	5	7	0	4	7	1	144[2]
Under 250,000	51	6	18	27	12	3	36	14	25	12	14	33	4	139[3]

[1] 10 cities [2] 11 cities [3] 51 cities [4] 72 cities

the third group, Providence, Louisville, Akron, Omaha, Dayton, Scranton, Paterson, Fall River, Salt Lake City, Lowell, Yonkers, and Tacoma.

The machinery for the detection and reporting of cases of communicable disease on the dairy farm seems to depend very largely on the interest of the dairymen themselves, and the coöperation of private physicians and county and state officials. In the large cities, New York for example, the dairymen report directly to the health department, or if a physician be in attendance his report may go directly to the health officer or to the state and then to the local health department. Many of the larger cities are like Chicago, where the county health officer's report is sent to the city health department for guidance in case of communicable disease on a dairy farm.

LABORATORY CONTROL

Laboratory examinations are usually made at the city laboratory by the city bacteriologist or chemist. Table V indicates the frequency of collection and samples collected in the different groups of cities. In all three groups of cities we note that samples are most frequently collected at the milk depots and on delivery wagons and less frequently on farms and in transit. In the first group, only 3 cities, Chicago, Detroit and Philadelphia, collect samples at farms at all; while in transit, weekly collections are made in San Francisco, once a month in Philadelphia, twice a month in Chicago and irregularly or not at all in the other cities. At milk depots, collections are made more frequently, daily in Baltimore and Los Angeles, weekly in San Francisco, and irregularly (monthly or less) in the other cases. On the delivery wagons they are made daily in Philadelphia, Detroit and Baltimore, weekly in Chicago and San Francisco and less often in the other cities.

Among the cities of the second group, collections at the farms and in transit are made irregularly, generally not over twice a year except in the case of New Orleans, which reports daily collections in transit. At milk depots collections are made daily in Washington and New Orleans, weekly in Milwaukee and Kansas City, Mo., and in the other cities not over twice a month. The average is about the same for delivery wagon collections, i. e., daily in 3 cities, Washington, New Orleans, and Minneapolis, weekly in Milwaukee, twice a month in Rochester and Kansas City, Mo., and in the others irregularly or not at all.

For the cities of the third group, collections at the farms are made irregularly or not at all, with the exception of Oakland, Bridgeport, Yonkers, Tacoma, Somerville, and San Diego, where they are made once a month. In transit they are made three times a week in Providence, weekly in Schenectady and Syracuse, and monthly in 9 other cities. Samples are collected from milk depots daily in Dallas, Elizabeth and San Diego, and weekly in 11 of the other cities. On the delivery wagons collections are made daily in Elizabeth only, weekly in 13 other cities and monthly in 18 cities.

Bacteriological standards for the different cities are discussed under the subject of milk grades.

The chemical standards are usually those prescribed by the state. In about half (41) of the cities the requirements for solids are 12 per cent, the remaining cities varying slightly on either side of this figure. In 30 cities the requirements for solids not fat are 8.5 per cent, and 36 have a standard somewhat higher than this, even reaching 9.5 per cent in Duluth. On the standard for fat, the cities are about equally divided between 3 per cent (in 24 cities), 3.25 per cent (in 20 cities), and 3.50 per cent (in 20 cities), with the number reaching as high as 3.9 per cent in Denver. The water requirement is 88 per cent in 45 of the cities reporting, and in the rest this fig-

ure varies according to the requirements for the other constituents.

TUBERCULIN TESTING

In 39 cities, tuberculin testing is required of all herds from which raw milk is sold. In 14 additional cities this requirement applies to Grade A raw milk or its equivalent, and in 7 others to certified milk. In the larger cities, particularly, dealers in raw milk are required to have their herds tuberculin tested, and in 7 (58 per cent) of the first group, 10 (76 per cent) of the second and 25 (59 per cent) of the third group under observation this measure is apparently enforced. In some instances, notably Buffalo, Cincinnati, New Orleans and several of the smaller cities, tuberculin testing is required of cows producing certified milk only, but it is interesting to note that in Buffalo and Cincinnati over 98 per cent, and in the majority of the smaller cities where this is true over 90 per cent of the total supply is pasteurized. In a number of cases tuberculin testing is required, but not enforced; but the annual number of cattle which are placed under this test cannot be used as a check on the amount of work done, since in many of the northern states all cattle coming into the state must be tested before they can be admitted, and the local officials seldom have these figures.

Tuberculin testing may be carried on either by the state, or by private or local veterinarians, or by both. Three cities of the first group, Philadelphia, Los Angeles, and San Francisco; Milwaukee of the second group, and Toledo, Oakland, Omaha, Dayton, New Haven, Hartford, Paterson, Youngstown, Des Moines, Wilmington, Yonkers, Jacksonville, Utica, and Canton of the third group, depend upon state veterinarians. A greater number, 7 in the first, 11 in the second, and 31 in the third group, employ private veterinarians for this work. In 14 of these cities the veterinarians work in connection with the state or federal officials, while in 8, Seattle, Cincinnati, Cleveland, Pittsburgh, Portland, Memphis, San Antonio, and Dallas, the health department employs its own veterinarians for this work.

We have only a rough estimate of the proportion of cows that are annually tested, but for most of the cities the number would probably not exceed 10 per cent. We find that 100 per cent of the herds for which tuberculin testing is required are reported tested in Washington, in Texas cities, and in 8 others of this third group, Columbus, Memphis, Savannah, Schenectady, Oklahoma City, Jacksonville, Norfolk, and Nashville. In Kansas City, Mo., St. Paul, Houston, Kansas City, Kan., Duluth, Spokane, and San Diego 90 per cent or more of the cattle are reported tested.

The procedure employed in 54 cities is to slaughter the reacting cows, but in a few cases, notably Minneapolis, Oakland, San Antonio, and Norfolk, they are removed from the herd. In Washington the cows are either immediately killed or removed from the farm; in Minneapolis the premises must be disinfected, and in Camden the farmer himself is responsible for removing a reacting cow. In New York and Albany the reacting animals are slaughtered or maintained on the Bang system through New York state authority. In Los Angeles the cattle are tatooed and used only in dairies pasteurizing their milk; in Flint the reactors are tagged, and in Dallas they are isolated.

Usually the owners of reacting animals receive some compensation either from the state or from the city. In more than half the cities, 6 in the first group, 6 in the second, and 35 in the third, this is provided by law, and the compensation varies according to the kind or value of the animals. The price usually paid for a registered cow is about $300.00 and for grades from $25 to $100.00, while in some cases a certain percentage of the valuation, say from 30 to 60 per cent, is allowed. Where tuberculin testing is not required there is usually no compensa-

tion provided, although the state may pay for the condemned animal, as in Hartford and Des Moines. When tests are made under the Accredited Herd Plan, both federal and state governments compensate the farmers on a varying scale. The reactors are slaughtered and sold for beef in Cincinnati, New Orleans, Nashville, and Canton, unless the meat is condemned for such use.

PASTEURIZATION

In at least 10 of the 12 larger cities under observation all milk except that from tuberculin-tested cattle must be pasteurized. As nearly as can be ascertained, about 95 per cent of the milk supply of these cities is thus treated. The individual reports show that 9 out of the 12 cities of this group pasteurize 95 per cent or more of their total milk supply.

Of the second group, 8 cities, Washington, New Orleans, Minneapolis, Kansas City, Mo., Indianapolis, Rochester, Portland and Denver, do not require pasteurization, and only 5, Milwaukee, Newark, Cincinnati, Jersey City and Seattle, require this treatment for all milk not from tuberculin-tested cattle.

Of the cities of the third group pasteurization is required in less than half (23) and only about 9 per cent of the cities pasteurize 95 per cent or more of their total milk supply. In the individual cities the amounts pasteurized range from 17 per cent to 99 per cent, while 8 cities, Columbus, Oakland, Akron, Omaha, Wilmington, Tacoma, Canton, and San Diego, require the pasteurization of all milk not from tuberculin-tested herds.

Repasteurization is permitted in only 29 cities, 4 of them in the second group and 25 in the third group. The cities of over 500,000 population and those in the states of California, Indiana, Nebraska, New Jersey, Ohio, Washington and Wisconsin are most particular in this regard.

Inspection of plants is the usual form of supervision, and in 12 cities pasteurization plants are inspected weekly or oftener; temperature charts are used for control of pasteurization in 16 cities.

The holding system is required in all but 20 cities studied, a temperature of 145° F. for thirty minutes being most common. A few cities allow a minimum of 142° F. and a maximum of 145° F. or even 147° F., as in Detroit and Buffalo. If the maximum temperature is high, a few cities allow from 20 to 25 minutes for the period of holding.

Recording thermometers are required in 65 cities. The cities not so included are Pittsburgh, Washington, New Orleans, Denver, Providence, Louisville, Akron, Paterson, Youngstown, Des Moines, New Bedford, Nashville, Camden, Wilmington, Cambridge, Albany, Flint, and Savannah.

MILK GRADES

Although 31 of the 83 cities under observation report that their milk supply is graded, there is little uniformity as to requirements and types of grading. Forty-five cities report the sale of certified milk, for which the bacterial count must not exceed 10,000 per c.c.

Grade A Raw, for which the bacterial count must not exceed 60,000 per c.c., is found principally in the cities of New York State, and in Louisville and Birmingham. Bacterial counts for Grade A Raw in Detroit must not exceed 40,000 per c.c.; in Cleveland, Baltimore, Oakland and Richmond, 50,000; while Los Angeles, Newark, Kansas City, Mo., Bridgeport, Memphis, Kansas City, Kan., Norfolk, Seattle, and Milwaukee allow a bacterial count of 100,000 per c.c. Los Angeles has a grade of "Guaranteed Raw" which allows only 25,000 bacteria per c.c., while Jacksonville has a still higher grade called "Baby Milk," which includes milk of a bacterial count under 15,000 per c.c.

The bacterial count for Grade A Pasteurized in Baltimore, Newark, Louisville, Albany, Yonkers, Schenectady, Utica, and Rochester must not exceed

30,000 per c.c., while in Los Angeles, Kansas City, Kan., Oakland, Birmingham, Richmond, Paterson, and Norfolk the requirements are even more stringent, reaching 5,000 in Richmond.

Only a few of the cities have a Grade B milk, and practically none have a Grade C. To meet the requirements for Grade B Raw in the cities of New York State, Louisville, and St. Paul, the bacterial count must not exceed 200,000 per c.c. The "commercial milk" of Jacksonville has this same requirement. Grade B Pasteurized has a standard of 100,000 per c.c. in the cities of New York State, Detroit, Louisville, Bridgeport, Kansas City, Mo., and Somerville, while the requirements for the second grade of pasteurized milk in Philadelphia, Los Angeles, Newark, Kansas City, Kan., St. Paul, Birmingham, Grand Rapids, Norfolk, Paterson, and Jacksonville allow a maximum count of only 50,000 per c.c. A number of cities have special regulations which limit the bacterial count before and after pasteurization, and a few change the standard during the summer weather, as in Chicago, where from October 1 to May 1 the requirement is 50,000 per c.c. or under, and from May 2 to September 30, it is 100,000 per c.c. or under. Our data are incomplete on this subject.

The only cities for which we have any information as to Grade C milk are New York and Albany, which allow 500,000 bacteria per c.c. for raw and 300,000 for pasteurized; Bridgeport, where Grade C milk must be boiled two minutes; and Salt Lake City, which allows 250,000 per c.c.

In San Francisco the milk is not graded, but the whole supply is reported pasteurized. Youngstown is the only city which reports grading by a sediment test alone. In several cities, as those in New York State, regulations either state or local require appropriate tags or labels for the containers of the various grades of milk sold.

LICENSES

In practically all the cities under observation milk dealers are licensed, but in less than half (31 out of 75 reporting) is a license demanded of the milk farm. Only two of the larger cities, Philadelphia and Baltimore, license farms, but dealers are licensed in every one of the 10 reporting cities of this group. Licenses were revoked in 5 of the cities. In the second, as in the first group of cities, all the dealers are licensed, while all but 4, Milwaukee, Minneapolis, Indianapolis, and Rochester, license the farms also. Portland and Newark give no statement. Cincinnati is the only city which reports having revoked licenses to any extent.

Twenty-two cities of the third group have licenses for farms, and all but 3, Youngstown, Jacksonville, and Savannah, license the milk dealers. Licenses have been revoked in 17 of these cities. Thirteen cities in all furnish no data as to the number of licenses revoked in 1920.

PROSECUTIONS

Prosecutions are usually conducted by the city attorney on complaint of the health department. In some instances the health department simply acts to withdraw the permit to sell milk. Several cities handle this question through the health department entirely, withdrawing the license or permit in preference to making a definite fine. This procedure is especially true of the smaller cities. For the first group of cities we find from 5 to 204 prosecutions, with from 5 to 179 convictions. The prosecutions in the second group range from 1 to 5,738, with a similar range of convictions. From 1 to 125 prosecutions are reported by cities of the third group, with from 1 to 75 convictions.

MILK COMMISSIONS

Eleven cities of the first group, 9 cities of the second group and 26 cities

TABLE VII—SUPERVISION OF MILK SUPPLIES IN EIGHTY-THREE CITIES, 1920

	CITIES	ORGANIZATION				FIELD CONTROL					
			Personnel		Expenditures	Producing Farms					
		Conducted by Division of	Veterinarians	Inspectors	Total	Number	Inspections			Scoring	
							No.	Per 1000 Pop'n	Frequency	Are They Scored	Score Card Used
	Cities of over 500,000 Population.										
1	Baltimore, Md.	Chemistry & Food	1	21	24500S	3800	6944	9.4	4 yearly	No	Mod.
2	Boston, Mass.	Food	1	8	N.S.	30000	N.S.	.....	Constantly	Yes	Gov.
3	Buffalo, N. Y.	Food	1	17	N.S.	2700 to 2800	N.S.	.....	1-4 yrly.	Yes	Mod.
4	Chicago, Ill.	Food	2	28	N.S.	18000	7698	2.8	Irregular	Yes	Gov.
5	Cleveland, Ohio	Food & Dairy	2P	11	27275	0.034	4656	5957	7.4	Yearly	Yes	Gov.
6	Detroit, Mich.	Dairy & Food	2	12	33360	0.033	8000	7826	7.8	2 yearly	Yes	Gov.
7	Los Angeles, Cal.	Food	1	9	20880	0.036	1400	10486	18.1	12 yearly	Yes	Gov.
8	New York, N. Y.	Food & Drugs	1	29	N.S.	.....	40000to50000	N.S.	.....	4 yearly	Yes	N.Y.C.
9	Philadelphia, Pa.	Milk	1	16	N.S.	.....	12000	N.S.	.....	N.S.	Yes	Gov.
10	Pittsburgh, Pa.	Food & Drugs	.....	10	N.S.	.....	8000	24000	40.8	4 yearly	Yes	Mod.
11	San Francisco, Cal.	Food	2	3W 4P	12565	0.027	208	1501	2.9	Ev. 5 wks	Yes	Gov.
12	St. Louis, Mo.	Dairy & Food	2	4	10680S	.....	N.S.	3871	5.0	Ev. 10 ds.	Yes	Gov.
	Cities of 250,000 to 500,000 Population.										
13	Cincinnati, Ohio	Food	2	6W10P	N.S.	.....	2000	3301	8.2	4 yearly	Yes	Gov.
14	Denver, Colo.	Dairy & Food	1	4	7680S	.....	1400	1400	5.4	Annually	Yes	Gov.
15	Indianapolis, Ind.	Health Dept.	1	1W 1P	N.S.	.....	1500	1926[1]	.....	2 yearly	Yes	Gov.
16	Jersey City, N. J.	Milk	.....	2	N.S.	.....	1700	1695	5.6	Annually	Yes	Mod.
17	Kansas City, Mo.	Food & Dairy	.....	9	N.S.	.....	2000	1740	5.3	2-5 yearly	Yes	Gov.
18	Milwaukee, Wis.	Food	2	6	N.S.	.....	3000	1400	3.0	N.S.	No	.....
19	Minneapolis, Minn.	Public Health Insp.	1P	3	N.S.	.....	N.S.	N.S.	.....	Annually	Yes	Gov.
20	Newark, N. J.	Food & Drugs	.....	5	N.S.	.....	N.S.	N.S.	.....	6 yearly	Yes	Gov.
21	New Orleans, La.	Food & Dairy	1	5	N.S.	.....	N.S.	N.S.	.....	12 yearly	Yes	N.S.
22	Portland, Ore.	Health Dept.	2	3	N.S.	.....	900	2586	10.0	Frequent	Yes	Gov.
23	Rochester, N. Y.	Dairy & Food	N.S.	N.S.	N.S.	.....	900	N.S.	.....	3 yearly	Yes	State
24	Seattle, Wash.	Dairy & Food	2	3	10400S	.....	450	1493	4.7	N.S.	Yes	Gov.
25	Washington, D. C.	Dairy & Food	7	17	29587	0.067	1577	5447	12.4	4 yearly	Yes	Mod.
	Cities of less than 250,000 population.										
26	Akron, Ohio	Dairy & Food	2P	.....	.....	.....	2600	298	1.4	N.S.	Yes	Gov.
27	Albany, N. Y.	Milk & Markets	1	1	4025	0.035	493	493	4.3	Annually	Yes	State
28	Atlanta, Ga.	Dairy & Food	1	4	N.S.	.....	212	N.S.	.....	Irregularly	Yes	Gov.
29	Birmingham, Ala.	Food & Dairy	2	1	10500	0.058	150	N.S.	.....	12 yearly	Yes	Gov.
30	Bridgeport, Conn.	Sanitation	.....	2	N.S.	.....	800	780	5.4	12 yearly	No	.....
31	Cambridge, Mass.	Health Dept.	.....	1W 1P	N.S.	.....	N.S.	N.S.	.....	N.S.	N.S.	.....
32	Camden, N. J.	Health Dept.	.....	1P	N.S.	.....	N.S.	N.S.	.....	N.S.	No	.....
33	Canton, Ohio	Food & Dairy	1	.....	2250	0.025	600-700	325	3.7	Annually	Yes	Gov.
34	Columbus, Ohio	Dairy & Food	6	9	31258	0.131	2700	3153	13.3	2 yearly	Yes	Gov.
35	Dallas, Texas	Food & Milk	1	4	10950S	.....	674	5393	33.8	6 yearly	Yes	Mod.
36	Dayton, Ohio	Food	5P	3	N.S.	.....	1500	1640	10.7	Annually	Yes	Gov.
37	Des Moines, Iowa	Health Dept.	.....	1W 3P	2640	0.020	N.S.	250	1.9	Irregular	Yes	Gov.
38	Duluth, Minn.	Health Dept.	1	3	9185	0.092	285	1200	12.1	4 yearly	Yes	Mod.
39	Elizabeth, N. J.	Health Dept.	.....	1W 1P	N.S.	.....	700	N.S.	.....	N.S.	No	.....
40	Erie, Pa.	Health Dept.	.....	2	1968	0.021	837	1013	10.8	Annually	Yes	Gov.
41	Fall River, Mass.	Health Dept.	.....	1	N.S.	.....	428	736	6.1	1-3 yearly	Yes	Mod.
42	Flint, Mich.	Health Dept.	.....	3	8165	0.089	700	993	10.8	1½ yearly	Yes	Gov.
43	Ft. Worth, Texas	Milk & Dairy	1	1	6300	0.059	389	100	0.9	4-6 yearly	No	.....
44	Grand Rapids, Mich.	Food	.....	3	7636	0.055	800	1054	7.6	12 yearly	Yes	Gov.
45	Hartford, Conn.	Health Dept.	.....	2W 2P	4400	0.031	871	697	5.0	12 yearly	No	.....
46	Houston, Texas	Food	.....	3	5040S	.....	417	3496	25.3	2 yearly	Yes	Mod.
47	Jacksonville, Fla.	Health Dept.	1P	2	N.S.	.....	90	1173	12.7	12 yearly	No	.....
48	Kansas City, Kan.	Health Dept.	.....	1	1800S	.....	1900	235	2.3	Yearly	Yes	Gov.
49	Lawrence, Mass.	Milk	N.S.	N.S.	N.S.	.....	N.S.	N.S.	.....	N.S.	N.S.	N.S.
50	Louisville, Ky.	Dairy & Food	2	5	10522	0.044	1200	383	1.6	Annually	Yes	Gov.
51	Lowell, Mass.	Health Dept.	N.S.	N.S.	3364S	.....	5000	200	1.7	N.S.	Yes	Gov.
52	Lynn, Mass.	Health Dept.	N.S.	N.S.	N.S.	.....	21	N.S.	.....	4 yearly	No	.....
53	Memphis, Tenn.	Sanitary Insp.	2	3	6274	0.038	413	1755	10.8	12 yearly	Yes	Gov.
54	Nashville, Tenn.	Health Dept.	1P	1	N.S.	.....	507	82	0.7	4 yearly	Yes	Gov.
55	New Bedford, Mass.	Health Dept.	N.S.	N.S.	N.S.	.....	425	N.S.	.....	Annually	No	.....
56	New Haven, Conn.	Inspection	.....	5	N.S.	.....	750	2658	16.3	Annually	Yes	Specl.
57	Norfolk, Va.	Food	1P	1W 1P	N.S.	.....	40	1600	13.7	Weekly	Yes	Gov.
58	Oakland, Cal.	Market & Food	1	3	11820	0.054	75-80	2245	10.3	4 yearly	Yes	Gov.
59	Oklahoma City, Okla.	Health Dept.	.....	1	4950S	.....	1202	691	7.5	6 yearly	Yes	Mod.
60	Omaha, Neb.	Dairy	1	4	N.S.	.....	N.S.	N.S.	.....	N.S.	No	.....
61	Paterson, N. J.	Health Dept.	1P	1	N.S.	.....	200	60	0.4	Annually	Yes	State
62	Providence, R. I.	Milk	.....	2	12271	0.051	83	.....	.....	.....	.....	.....
63	Reading, Pa.	Milk & Meat	2	.....	N.S.	.....	430	N.S.	.....	Annually	Yes	N.S.
64	Richmond, Va.	Dairy	.....	2	7306	0.042	163	1749	10.1	12 yearly	Yes	Gov.
65	Salt Lake City, Utah	Health Dept.	1P	1	N.S.	.....	750	1416	12.0	3 yearly	Yes	Gov.
66	San Antonio, Texas	Health Dept.	1P	2	N.S.	.....	465	680	4.2	Annually	Yes	Gov.
67	San Diego, Cal.	Health Dept.	1	.....	N.S.	.....	66	550	7.3	12 yearly	Yes	Gov.
68	Savannah, Ga.	Health Dept.	1P	1	N.S.	.....	42	3600[1]	.....	Irregular	No	.....
69	Schenectady, N. Y.	Health Dept.	1P	2	4118	0.046	540	452	5.0	Annually	Yes	State
70	Scranton, Pa.	Health Dept.	.....	1W 1P	4005	0.029	1200	1710	12.4	2 yearly	Yes	State
71	Somerville, Mass.	Milk	.....	1	N.S.	.....	34	N.S.	.....	12 yearly	Yes	Gov.
72	Spokane, Wash.	Food	.....	2	N.S.	.....	600	1205	11.5	3-4 yearly	No	.....
73	Springfield, Mass.	Health Dept.	.....	2	6164	0.047	1100	618	4.7	Annually	Yes	Gov.
74	St. Paul, Minn.	Health Dept.	1	2	N.S.	.....	1000	388	1.6	Annually	Yes	Mod.
75	Syracuse, N. Y.	Milk & Meat	1	1	N.S.	.....	625	787	4.5	Annually	Yes	Gov.
76	Tacoma, Wash.	Health Dept.	1P	1	N.S.	.....	109	N.S.	.....	12 yearly	No	.....
77	Toledo, Ohio	Dairy & Food	2	1	N.S.	.....	4000	3115	12.7	Annually	No	.....
78	Trenton, N. J.	Dairy & Food	.....	1	N.S.	.....	N.S.	228	1.9	Irregular	No	.....
79	Utica, N. Y.	Dairy & Meat	.....	1W 1P	N.S.	.....	175	.....	.....	Annually	Yes	State
80	Wilmington, Del.	Health Dept.	.....	1	1620	0.014	N.S.	N.S.	.....	N.S.	No	.....
81	Worcester, Mass.	Health Dept.	.....	1	N.S.	.....	350 to 400	150	0.8	N.S.	Yes	Gov.
82	Yonkers, N. Y.	Health Dept.	1	1	N.S.	.....	900	N.S.	.....	12 yearly	No	.....
83	Youngstown, Ohio	Health Dept.	.....	1P	3080	0.023	763	833	6.2	Annually	Yes	O. Un.

S—Salaries only. W—Whole Time. P—Part Time. N. S.—Not Stated. [1]—Includes Milk Depot Inspections.

TABLE VII—SUPERVISION OF MILK SUPPLIES IN EIGHTY-THREE CITIES, 1920

	FIELD CONTROL										
	Milk Depots					Temperature Requirements				Milk for Which Herds Are Tuberculin Tested	CITIES
	No.	Inspections			Are They Scored	At Farms	Transit	Milk Depots	Delivery		
		No.	Per 1000 Pop'n	Frequency							
										Cities of over 500,000 Population	
1	5	2400	3.2	4 week	Yes	N.S.	[60	[50	N.S.	Selected raw	Baltimore, Md. 1
2	160	N.S.		Daily	Yes	50	[50	[50	50	Not required	Boston, Mass. 2
3	143	N.S.		24 year	No	50	50	[50	50	Certified	Buffalo, N. Y. 3
4	589	19253	7.1	Weekly	Yes	50	50	45	50	Not required	Chicago, Ill. 4
5	249	8945	11.2	Weekly	Yes	55	55	55	55	Grade A & Certified	Cleveland, Ohio 5
6	46	2752	2.7	3 weekly	Yes	60	60	-50	-50	Grade A & Certified	Detroit, Mich. 6
7	14	2400	4.1	Daily	Yes	60	60	40	50	All raw	Los Angeles, Cal. 7
8	N.S.	N.S.		Past.12 Raw4½	Yes	50	50	50	50	Grade A raw	New York, N. Y. 8
9	65	N.S.		N.S.	Yes		60	60	60	All raw	Philadelphia, Pa. 9
10	2000	N.S.		26 year	Yes	60	60	-50	-50	All raw	Pittsburgh, Pa. 10
11	34	374	0.7	12 year	No	45	Iced	Iced	Iced	All raw	San Francisco, Cal. 11
12	42	N.S.		Weekly	Yes	50	50	50	50	All raw	St. Louis, Mo. 12
										Cities of 250,000 to 500,000 Population.	
13	N.S.	3011	7.5	Every 10 days.	Yes	50-60	N.S.	50	-50	Certified	Cincinnati, Ohio 13
14	12	444	1.7	24-36 yearly	Yes	60	60	50	50	Not required	Denver, Colo. 14
15	40			5-6 yearly	Yes	No	Require	ments		All raw	Indianapolis, Ind. 15
16	N.S.	30	0.1	Constant	Yes	N.S.	N.S.	N.S.	N.S.	All raw	Jersey City, N. J. 16
17	9	N.S.		3 weekly	Yes	50	50	50	50	All raw	Kansas City, Mo. 17
18	28	1536	3.3	Daily	No	60	60	60	60	All raw	Milwaukee, Wis. 18
19	18	N.S.		Annually	Yes	50	50	50	50	All raw	Minneapolis, Minn. 19
20	N.S.	N.S.		4 yearly	Yes	60	N.S.	60	50	Grade A raw	Newark, N. J. 20
21	N.S.	N.S.		Irregular	Yes	No	Require	ments		Certified	New Orleans, La. 21
22	20	392	1.5	2 yearly	Yes	60	60	67	60	All raw	Portland, Ore. 22
23	132	N.S.		2 yearly	Yes	N.S.	N.S.	N.S.	N.S.	Grade A raw & Cert.	Rochester, N. Y. 23
24	18	1857	5.8	N.S.	Yes	60	60	50	55	All raw	Seattle, Wash. 24
25	40	585	1.3	24 yearly	No	No	Require	ments		All raw	Washington, D. C. 25
										Cities of less than 250,000 Population.	
26	5	209	1.0	12 yearly	No	65	65	65	65	All raw	Akron, Ohio 26
27	25	293	2.5	12 yearly	No	50	50	50	50	Grade A raw & Cert.	Albany, N. Y. 27
28	20	4140	20.5	Irregular	Yes	50	50	50	50	All	Atlanta, Ga. 28
29	N.S.	N.S.		Weekly	No	50	50	50	50	All raw	Birmingham, Ala. 29
30	7	1000	7.0	Weekly	Yes	50	50	50	50	Grade A raw	Bridgeport, Conn. 30
31	N.S.	N.S.		N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	Not required	Cambridge, Mass. 31
32	5	N.S.		Irregular	No	No	Require	ments.		Certified	Camden, N. J. 32
33	17	N.S.		Weekly	No	70	70	60	60	All raw	Canton, Ohio 33
34	12	1132	4.8	N.S.	Yes	65	65	65	65	All raw	Columbus, Ohio 34
35	5	60	3.7	24 yearly	Yes	55	55	55	55	All	Dallas, Texas 35
36	21	986	6.4	12 yearly	Yes	60		50	50	All raw	Dayton, Ohio 36
37	29	1080	8.4	2 weekly	Yes	50	50	50	50	Not required	Des Moines, Iowa 37
38	1	104	1.0	Weekly	No	50	50	50	50	All raw	Duluth, Minn. 38
39	18	N.S.		N.S.	No	50	50	50	50	All raw	Elizabeth, N. J. 39
40	4	N.S.		24 yearly	Yes	50		50	50	Not required	Erie, Pa. 40
41	54	191	1.5	4 yearly	No	50	50	50	50	(Physical only)	Fall River, Mass. 41
42	17	477	5.2	Weekly	No			60		All	Flint, Mich. 42
43	5	100	0.9	24 yearly	No	50	65	65	65	All	Ft. Worth, Texas 43
44	31	216	1.5	N.S.		-60	-60	-60	-60	Grade A & Certified	Grand Rapids, Mich. 44
45	96	1957	14.1	24 yearly	No	50	50	50	50	Not required	Hartford, Conn. 45
46	5	238	1.7	2 weekly	No	65	N.S.	50	65	All raw	Houston, Texas 46
47	8	694	7.6	12 yearly	Yes	50	50	50	50	All	Jacksonville, Fla. 47
48	10	58	0.5	12 yearly	Yes	60	60	50	50	All	Kansas City, Kan. 48
49	3	N.S.		N.S.	N.S.				60	Not required	Lawrence, Mass. 49
50	32	185	0.8	12 yearly	Yes			45		Not required	Louisville, Ky. 50
51	99	N.S.		Irregular	N.S.	50	50	50	60	Not required	Lowell, Mass. 51
52	1	N.S.		N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	Not required	Lynn, Mass. 52
53	4	74	0.4	24-36 yearly	Yes	60	60	60	60	All	Memphis, Tenn 53
54	2	234	1.9	Weekly	Yes	No	Require	ments.		All	Nashville, Tenn. 54
55	77	N.S.		N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	Not required	New Bedford, Mass. 55
56	70	2778	17.0	Annually	Yes	50	50	50	50	Not required	New Haven, Conn. 56
57	15	N.S.		12 yearly	Yes	50	50	50	50	All	Norfolk, Va. 57
58	13	1496	6.0	Weekly	Yes	65	65	-50	-50	All raw	Oakland, Cal. 58
59	8	171	1.8	2 weekly	Yes	70	70	55	55	All raw	Oklahoma City, Okla. 59
60	107	786	4.0	12 yearly	Yes	50	50	50	50	All raw	Omaha, Neb. 60
61	26	N.S.		N.S.	Yes	-50	-50	-50	-50	Grade A & Certified	Paterson, N. J. 61
62	80	N.S.		Often	Yes	No	Require	ments.		Not required.	Providence, R. I. 62
63	13	277	2.5	4 yearly	No	60	60	60	60	Not required	Reading, Pa. 63
64	2	50	0.2	12 yearly	Yes	60-70	50	50	50	Grade A raw	Richmond, Va. 64
65	17	996	8.4	12 yearly	Yes	60	60	60	60	All	Salt Lake City, Utah. 65
66	11	642	4.0	Weekly	Yes	70	70	70	70	All	San Antonio, Texas. 66
67	4	723	9.6	4 yearly	Yes	60	70	70	70	All raw	San Diego, Cal. 67
68	33			N.S.	No	50		50		All raw	Savannah, Ga. 68
69	54	312	3.5	12 yearly	No	50	50	50	50	Grade A	Schenectady N. Y. 69
70	9	2905	21.0	2 yearly	Yes	N.S.	N.S.	N.S.	50	Certified	Scranton, Pa. 70
71	19	149	1.6	12 yearly	No	50	50	50	50	N.S.	Somerville, Mass. 71
72	4	2630	25.2	N.S.	No	55	55	55	55	All	Spokane, Wash. 72
73	52	510	3.9	12 yearly	No	50	50	50	50	Certified	Springfield, Mass. 73
74	6	236	1.0	Weekly	Yes	55	55	55	55	All raw, ex. ret. prod.	St. Paul, Minn. 74
75	29	223	1.3	Weekly	Yes	50-60	50-60	50-60	50-60	Cert. & Insp.	Syracuse, N. Y. 75
76	3	N.S.		N.S.	No	N.S.	60	60	-60	Not required	Tacoma, Wash. 76
77	21	1004	4.1	Weekly	No	65	65	50	65	All raw	Toledo, Ohio 77
78	N.S.	870	7.3	12 yearly	No	50	50	50	50	Not required	Trenton, N. J. 78
79	53	58	0.6	12 yearly	Yes	50-60	N.S.	45-50		Grade A raw & Cert.	Utica, N. Y. 79
80	N.S.	2061	1.8	Weekly	No	No	Require	ments		N.S.	Wilmington, Del. 80
81	100	N.S.		N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	Not required	Worcester, Mass. 81
82	N.S.	N.S.		12 yearly	Yes	50	50	50	50	Certified	Yonkers, N. Y. 82
83	11	494	3.7	Constant	Yes	65	65	65	65	Not required	Youngstown, Ohio 83

S—Salaries only. W—Whole Time. P—Part time. N.S.—Not Stated. 1—Includes Milk Depot Inspections.

TABLE VIII—LABORATORY CONTROL, LEGAL CONTROL, AND PASTEURIZATION OF MILK IN EIGHTY-THREE CITIES, 1920

	CITIES	LABORATORY CONTROL						LEGAL CONTROL						
		Frequency of Collection				No. of Monthly Samples		License			Prosecutions			
		At Farms	In Transit	At Milk Depots	On Delivery Wagons	Tot.	Per 1000 Pop.	Fm.	Dlr.	No. Lic. Rev. 1920	Conducted By	No.	No. Convicted	
	Cities of over 500,000 Population.													
1	Baltimore, Md			5 weekly	Daily	3000	4.1	+	+	13	Health Dept	39	39	1
2	Boston, Mass	N.S.	N.S.	N.S.	N.S.	N.S.	....	....	+	....	N.S.	....	....	2
3	Buffalo, N. Y.			3 yearly	24 yearly	N.S.	....	....	+	N.S.	Corp. Counsel	N.S.	N.S.	3
4	Chicago, Ill.	+[1]	24 yearly	24 yearly	Weekly	2500	0.9	....	+	8	Health Dept	196	119	4
5	Cleveland, Ohio		2 yearly	12 yearly	12 yearly	700	0.8	....	+	188	Police Court	5	5	5
6	Detroit, Mich	2 yearly			Daily	600	0.6	....	+	....	Health Dept	25	19	6
7	Los Angeles, Cal		Irreg.	Daily	24 yearly	1800	3.1	N.S.	N.S.	N.S.	Health Dept	54	N.S.	7
8	New York, N. Y.			12 yearly	12 yearly	800	0.1	....	+	....	Corp Counsel	N.S.	N.S.	8
9	Philadelphia, Pa.	12 yearly	12 yearly	Irreg.	Daily	8716	4.7	+	+	25	City Attorney	204	179	9
10	Pittsburgh, Pa			Irreg.	Irreg.	1500	2.5	....	+	....	Health Dept	25	25	10
11	San Francisco, Cal		Weekly	Weekly	Weekly	80	0.1	N.S.	N.S.	N.S.	Health Dept	N.S.	38	11
12	St. Louis, Mo			+	+	700	0.9	....	+	10	City Attorney	115	98	12
	Cities of 250,000 to 500,000 Population.													
13	Cincinnati, Ohio	2 yearly		+		N.S.	....	+	+	1642	Health Dept	72	72	13
14	Denver, Colo	Yearly	Yearly	12 yearly	+	78	0.3	+	+	5	Health Dept	1	1	14
15	Indianapolis, Ind	Irregular		12 yearly	12 yearly	300	0.9	....	+	....	Health Dept	8	8	15
16	Jersey City, N. J	N.S.	N.S.	N.S.	N.S.	1221	4.1	+	+	1	Health Dept	5738	5738	16
17	Kansas City, Mo	R.24, P.2 yrly		Weekly	24 yearly	600	1.8	+	+	N.S.	City Attorney	44	44	17
18	Milwaukee, Wis	Irregular	3 yearly	Weekly	Weekly	575	1.2	....	+	+	Health Dept	57	57	18
19	Minneapolis, Minn	Irregular			Constant	200	0.5	....	+	1	Health Dept	81	78	19
20	Newark, N. J		Irreg.	4-6yearly	6 yearly	500	1.2	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	20
21	New Orleans, La	Irregular	Daily	Daily	Daily	600	1.5	+	+	....	Health Dept	178	62	21
22	Portland, Ore		+	+	Often	500	1.9	N.S.	N.S.	N.S.	Health Dept	....	....	22
23	Rochester, N. Y	Irregular	2 yearly	2 yearly	24 yearly	N.S.	....	....	+	....	Health Dept	N.S.	N.S.	23
24	Seattle, Wash	Irregular	Irreg.	12 yearly	12 yearly	260	0.8	+	+	....	City Attorney	N.S.	24	24
25	Washington, D. C			Daily	Daily	688	1.5	+	+	....	Health Dept	25	25	25
	Cities of less than 250,000 Population.													
26	Akron, Ohio				Weekly	45	0.2	....	+	1	Health Dept	5	5	26
27	Albany, N. Y	On complaint		12 yearly	12 yearly	110	0.9	....	+	....	Health Dept	5	5	27
28	Atlanta, Ga	Irregular		24 yearly	12 yearly	400	2.0	+	+	....	Health Dept	33	29	28
29	Birmingham, Ala	Irregular		N.S.	N.S.	N.S.	....	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	29
30	Bridgeport, Conn	12 yearly		Weekly	12 yearly	100	0.7	....	+	....	City Attorney	....	....	30
31	Cambridge, Mass	N.S.	N.S.	+	+	308	2.8	....	+	1	Health Dept	12	12	31
32	Camden, N. J					....	....	....	+	....	City Attorney	....	....	32
33	Canton, Ohio				Yearly	36	0.4	....	+	....	City Attorney	1	1	33
34	Columbus, Ohio			12 yearly	12 yearly	720	3.0	+	N.S.	93	Health Dept	2	2	34
35	Dallas, Texas		12 yearly	Daily	24 yearly	500	3.1	+	+	....	City Attorney	95	34	35
36	Dayton, Ohio				+	....	....	+	+	....	City Court	5	5	36
37	Des Moines, Iowa	Irregular		12 yearly	3 weekly	48	0.3	....	+	....	Health Dept	3	3	37
38	Duluth, Minn			+	+	110	1.1	+	+	N.S.	City Attorney	9	9	38
39	Elizabeth, N. J	Irregular	12 yearly	Daily	Daily	102	1.0	....	+	....	Health Dept	11	11	39
40	Erie, Pa				24 yearly	100	1.0	....	+	....	Health Dept	43	43	40
41	Fall River, Mass	Irregular	N.S.	N.S.	N.S.	181	1.5	+	N.S.	....	State Health Dept	5	5	41
42	Flint, Mich	+	+		Weekly	100	1.0	+	+	27	Health Dept	....	....	42
43	Ft. Worth, Texas			12 yearly	12 yearly	200	1.8	+	+	....	Corp. Counsel	....	....	43
44	Grand Rapids, Mich				+	280	2.0	....	+	....	City Attorney	5	5	44
45	Hartford, Conn			24 yearly		150	1.1	....	+	2	City Attorney	N.S.	1	45
46	Houston, Texas			Weekly	Weekly	80	0.6	+	+	....	Cy. Atty. & Hlth.Dp.	12	8	46
47	Jacksonville, Fla	Irregular	12 yearly	Weekly	12 yearly	180	1.9	+	....	3	Health Dept	19	15	47
48	Kansas City, Kan			12 yearly	12 yearly	158	1.5	....	+	1	City Attorney	21	6	48
49	Lawrence, Mass					183	1.9	....	+	....	Health Dept	5	5	49
50	Louisville, Ky		+	+	12 yearly	120	0.5	....	+	....	Health Dept	8	7	50
51	Lowell, Mass		N.S.	N.S.	24 yearly	300	2.6	....	+	2	Health Dept	7	7	51
52	Lynn, Mass	N.S.	N.S.	N.S.	Weekly	188	1.8	....	+	....	N.S.	3	3	52
53	Memphis, Tenn	Irregular	12 yearly	Weekly	12 yearly	107	0.6	+	+	6	Health Dept	77	75	53
54	Nashville, Tenn			Irreg.	12 yearly	130	1.1	+	+	....	Health Dept	6	6	54
55	New Bedford, Mass				+	N.S.	....	....	+	+	Health Dept	2	2	55
56	New Haven, Conn			Monthly	Monthly	250	1.5	....	+	....	City Attorney	....	....	56
57	Norfolk, Va	Irregular		Weekly	Weekly	65	0.5	+	+	....	Health Dept	2-3	2-3	57
58	Oakland, Cal	12 yearly		Weekly	Irreg.	250	1.1	N.S.	N.S.	N.S.	Health Dept	N.S.	20	58
59	Oklahoma City, Okla			+	+	25	0.2	+	+	42	City Attorney	36	34	59
60	Omaha, Neb	Irregular		Irreg.	Irreg.	45	0.2	+	+	1	Police Court	56	44	60
61	Paterson, N. J	On complaint		N.S.	2 weekly	80	0.5	....	+	1	N.S.	....	1	61
62	Providence, R. I	On request	2-3weekly	N.S.	12-24y'ly	320	1.3	....	+	....	Health Dept	21	21	62
63	Reading, Pa			36 yearly	+	....	....	+	+	....	City Attorney	4	4	63
64	Richmond, Va			12 yearly	12 yearly	266	1.5	+	+	10	City Attorney	....	....	64
65	Salt Lake City, Utah	3 yearly	2 yearly	12 yearly	12 yearly	50	0.4	....	+	N.S.	City Attorney	....	....	65
66	San Antonio, Texas		12 yearly	Weekly	Weekly	400	2.4	+	+	6	Health Dept	12	12	66
67	San Diego, Cal	12 yearly	12 yearly	Daily	12 yearly	1235	16.4	N.S.	N.S.	N.S.	Health Dept	N.S.	N.S.	67
68	Savannah, Ga	Rarely		Weekly	Weekly	250	3.0	....	....	....	Health Dept	125-30	N.S.	68
69	Schenectady, N. Y	Irregular	Weekly	Weekly	Weekly	135	1.5	+	+	19	State	6	6	69
70	Scranton, Pa			N.S.	Weekly	53	0.3	....	+	....	Health Dept	1	1	70
71	Somerville, Mass	12 yearly	12 yearly	12 yearly	12 yearly	265	2.8	+	+	....	N.S.	4	4	71
72	Spokane, Wash	Irregular		Irreg.	+	N.S.	....	....	+	....	Health Dept	10	10	72
73	Springfield, Mass	N.S.	+	+	12 yearly	181	1.3	....	+	....	Health Dept	3	3	73
74	St. Paul, Minn			+	+	12-30	0.1	+	+	....	City Attorney	3	3	74
75	Syracuse, N. Y	Irregular	Weekly		24 yearly	275	1.6	....	+	1	Police Court	....	....	75
76	Tacoma, Wash	12 yearly	26 yearly	26 yearly	26 yearly	100	1.0	....	+	4	City Attorney	6	6	76
77	Toledo, Ohio			12 yearly	26 yearly	120	0.5	....	+	....	Health Dept	6	6	77
78	Trenton, N. J	On complaint		12 yearly	12 yearly	....	....	....	+	....	City Attorney	....	8	78
79	Utica, N. Y			Weekly	Weekly	60	0.5	....	+	N.S.	Corp. Counsel	N.S.	N.S.	79
80	Wilmington, Del					83	0.7	....	+	N.S.	Health Dept	2	2	80
81	Worcester, Mass	N.S.	N.S.	N.S.	N.S.	50	0.2	N.S.	N.S.	....	N.S.	....	....	81
82	Yonkers, N. Y	12 yearly	12 yearly	12 yearly	12 yearly	192	1.9	....	+	....	Corporation Counsel	1	1	82
83	Youngstown, Ohio	1-2 yearly	6 yearly	Weekly	2-4weekly	223	1.6	+			Police Court			85

N. S.—Not stated. [1]—Sediment [2]—Raw above 60,000 per c.c.

TABLE VIII—LABORATORY CONTROL, LEGAL CONTROL AND PASTEURIZATION OF MILK IN EIGHTY-THREE CITIES, 1920

	PASTEURIZATION						Typhoid Deaths Per 100,000 Pop'n 1920	CITIES	
	Required For	Per Cent Supply Past.	Supervision	Holding System: Required	Holding System: Temperature	Holding System: Time Min.	Holding System: Recording Thermometer		
								Cities of over 500,000 Population.	
1	All but Selected raw	95	Inspection	+	142-150	30	+	4.7	Baltimore, Md.	1
2	N.S.	92	Inspection	+	142-145	30	+	1.4	Boston, Mass.	2
3	All but Cert.	99	Inspection	+	142-147	30	+	5.0	Buffalo, N. Y.	3
4	All but Cert.	98	Inspection	+	145	30	+	1.1	Chicago, Ill.	4
5	All but Cert. & A raw	98	Inspection	+	140-146	30	+	3.2	Cleveland, Ohio	5
6	All but Cert. & A raw	98	Inspection	+	145-147	30	+	5.0	Detroit, Mich.	6
7	All but T. B. test	85	Inspection	+	143	25	+	2.6	Los Angeles, Cal.	7
8	All but A raw	98	Inspection	+	142	30	+	2.4	New York, N. Y.	8
9	All but T. B. test	95	Inspection	+	142-145	30	+	3.2	Philadelphia, Pa.	9
10	All but Cert.	95	Inspection					5.2	Pittsburgh, Pa.	10
11	All but A raw	100	Inspection		140	20	+	3.1	San Francisco, Cal.	11
12		93	Inspection	+	142-144	30	+	2.7	St. Louis, Mo.	12
								Cities of 250,000 to 500,000 Population.	
13	All but Cert. & Inspt.	98.4	Inspection	+	145	30	+	3.0	Cincinnati, Ohio	13
14		40	Inspection		145	30		5.0	Denver, Colo.	14
15		95	Inspection	+	145	30	+	6.2	Indianapolis, Ind.	15
16	All but A and Cert.	95	Inspection	+	140-43	15	+		Jersey City, N. J.	16
17		60	Inspection	+	142-45	20-30	+	7.6	Kansas City, Mo.	17
18	All but Cert. & Inspt.	93	Inspection		145Hold160Flsk	30	+	2.1	Milwaukee, Wis.	18
19		95	Inspection	+	142-45	30	+	2.6	Minneapolis, Minn.	19
20	All but T. B. test	80	Inspection	+	145	30	+	1.9	Newark, N. J.	20
21		30	None		None			7.0	New Orleans, La.	21
22		50	Inspection	+	142	30	+	3.4	Portland, Ore.	22
23		40	Inspection	+	142-45	30	+	1.0	Rochester, N. Y.	23
24	All but T. B. test	88	Charts	+	145	25	+	1.9	Seattle, Wash.	24
25		92	Inspection					6.5	Washington, D. C.	25
								Cities of less than 250,000 Population.	
26	All but T. B. tested & that scoring under 80	99.5	Inspection	+	142	30		3.7	Akron, Ohio	26
27	Optional	40-42	Inspection	+	142-45	30		3.5	Albany, N. Y.	27
28	Shipped Milk	25	Inspection	+	142-46	30	+	12.8	Atlanta, Ga.	28
29	All but Cert. & A raw	16.7	Insp. & Tests	+	145	30	+	14.3	Birmingham, Ala.	29
30	All but A raw	85	Temp. Records	+	142-45	30	+	2.0	Bridgeport, Conn.	30
31		75						2.7	Cambridge, Mass.	31
32		N.S.							Camden, N. J.	32
33	All but T. B. test	90	Temp. Records	+	145	30	+	2.5	Canton, Ohio	33
34	All but T. B. test	85	Tests & Insp.	+	142-45	30	+	4.5	Columbus, Ohio	34
35	Milk over 100,000	60	Inspection	+	140-45	30	+	14.2	Dallas, Texas	35
36	All but Cert. & raw above 60,000 per c. c.	95	Inspection	+	145	30	+	7.1	Dayton, Ohio	36
37		90	Inspection		140	30		2.3	Des Moines, Iowa	37
38		45	Inspection	+	145	30	+	6.0	Duluth, Minn.	38
39		81	Inspection	+	142-45	30	+	1.0	Elizabeth, N. J.	39
40		80	Inspection	+	142	30	+	6.3	Erie, Pa.	40
41	Milk over 200,000 per c.c.	50	Inspection	+	146	30	+	5.0	Fall River, Mass.	41
42		85	Temp. Records					16.0	Flint, Mich.	42
43		75	Inspection	+	145	20	+	12.0	Ft. Worth, Texas	43
44	Grade B	90	Inspection	+	142	30	+	2.1	Grand Rapids, Mich.	44
45		60	Insp. & Tp. Rec		145	30	+	2.8	Hartford, Conn.	45
46		50	Inspection	+	145	30	+	11.3	Houston, Texas	46
47	Shipped Milk	20	Inspection	+	140-45	20	+	7.5	Jacksonville, Fla.	47
48	All below Grade A	70	Inspection	+	140-45	25-30	+	3.9	Kansas City, Kan.	48
49		75		+	140-45	30	+	6.3	Lawrence, Mass.	49
50		80	Inspection	+	142-45	30		3.8	Louisville, Ky.	50
51		34.2	Inspection	+	140-45	30	+	2.6	Lowell, Mass.	51
52		90		+	N.S.	N.S.	+		Lynn, Mass.	52
53		60	Inspection		143-45	30	+	7.9	Memphis, Tenn.	53
54		33	Inspection		140	20		9.2	Nashville, Tenn.	54
55		70						10.6	New Bedford, Mass.	55
56		55	Inspection		142	30	+	6.0	New Haven, Conn.	56
57	Milk over 36 hrs. old	25	Charts	+	145	30	+	3.4	Norfolk, Va.	57
58	All but T. B. test	90	Charts	+	143	35	+	3.1	Oakland, Cal.	58
59	All but Inspected	77	Inspection	+	145	20	+		Oklahoma City, Okla.	59
60	All but T. B. tested	30	Inspection	+	145	20	+	7.6	Omaha, Neb.	60
61									Paterson, N. J.	61
62		54	Inspection					3.8	Providence, R. I.	62
63		75	Inspection		142-45	30	+	5.5	Reading, Pa.	63
64	Grade B	92	Inspection	+	145	30	+	6.3	Richmond, Va.	64
65		75		+	140	20	+	6.0	Salt Lake City, Utah	65
66	Milk not Prod. by Disp.	67	Inspection	+	145	30	+	9.7	San Antonio, Texas	66
67	All but T. B. test	25	Inspection	+	140	30	+	3.9	San Diego, Cal.	67
68								11.9	Savannah, Ga.	68
69		35	Inspection	+	142-45	30	+	7.9	Schenectady, N. Y.	69
70	All but Cert.	99	Inspection	+	145	30	+	1.4	Scranton, Pa.	70
71		90	Inspection	+	145	30	+	3.1	Somerville, Mass.	71
72		75	Temp. Records	+	145	20	+	6.7	Spokane, Wash.	72
73		97	Inspection	+	140-45	30	+	4.5	Springfield, Mass.	73
74	All but retail prod.	66	Inspection	+	145	30	+	2.1	St. Paul, Minn.	74
75		66.7	Inspection	+	N.S.	N.S.	+	4.0	Syracuse, N. Y.	75
76	All but T. B. tested	60	Inspection	+	145	30	+	1.0	Tacoma, Wash.	76
77		90	Temp. Records	+	142-45	30	+	7.2	Toledo, Ohio	77
78		60	Inspection	+	145	30	+	5.0	Trenton, N. J.	78
79			Inspection	+	142-45	30	+	1.0	Utica, N. Y.	79
80	All but T. B. test	N.S.	Inspection		145	30		13.5	Wilmington, Del.	80
81	N.S.	42	Inspection	+	140-45	30	+	1.6	Worcester, Mass.	81
82		90	Inspection	+	142-45	30	+		Yonkers, N. Y.	82
83		95	Inspection	+	140-45	30	+	6.6	Youngstown, Ohio	83

N.S.—Not stated.

of the third group have milk commissions.

The number of farms producing certified milk varies inversely with the size of the population group. The number of farms per 100,000 population is 0.5 for the first group, 0.7 for the second group and 1 for the third group. However, there is more certified milk consumed per capita in the larger than in the smaller cities. In the cities of 500,000 and over the daily consumption of certified milk is 57.3 quarts per 10,000 population. In the cities from 500,000 to 250,000, 46.4 quarts of certified milk per 10,000 population are used, and in the cities of 250,000 and under, this figure is only 28 quarts. An average of 50 quarts per day per 10,000 population for the 45 cities receiving certified milk is reported.

SUMMARY AND CONCLUSIONS

1. Organization. The sanitary supervision of milk supply is in general carried on in the larger cities as a part of the work of the division of foods, while in the smaller cities it is handled by the health officer himself or by a subordinate director responsible to him. Both of these plans seem to be generally satisfactory for cities respectively of over and under 140,000 population.

2. The licensing of milk dealers is a fundamental essential in the successful control of the milk problem. Whether farms shall also be licensed by the city is of secondary importance, as they can easily be indirectly controlled through the licensing of milk dealers. The licensing of milk dealers is practically universal in the group of cities studied.

3. The usual practice appears to be to employ between one and two inspectors per 100,000 population for the supervision of sanitary conditions at farms and dairies. Such a personnel should make possible inspection of each farm once or twice a year. The standard score cards of the U. S. Department of Agriculture are generally used for the purpose of recording the results of farm inspection.

4. For the supervision of the health of the dairy cattle one veterinarian on full time is usually provided for a population of from 300,000 to 600,000.

5. Temperature regulations are usually enforced at farms, in transit, at milk depots, and in delivery wagons. The limits set generally vary from 50° to 55° F.

6. Laboratory control is exercised in practically all cities, and is of obvious and fundamental importance. The samples examined average between 130 and 140 per 100,000 population.

7. The foundation stone of efficient control of the milk situation is a system of grading based on dairy scores and bacterial counts. It is surprising and disappointing to find that only 31 of the 83 cities studied report the use of a grading system, and among these 31 there is little uniformity as to requirements. The adoption of such standard systems of grading milk as have been suggested by the National Commission on Milk Standards would seem to be one of the most urgent steps to be taken in this field in the future.

8. The next step after the introduction of a grading system should be to secure the pasteurization of all milk below the generally accepted standards of Grade A Raw. This sort of regulation is in force in the large cities studied in our survey; in our second, and third groups of cities less than half have such a regulation; and in the third group of the small cities only 9 per cent of the cities pasteurized 95 per cent or more of their total milk supply. Since pasteurization offers the only possible safeguard for milk that is not produced under ideal conditions and from tuberculin-tested cattle, it seems most important that official regulation

should conform to sanitary knowledge more completely than is the case at present. With the regulation requiring the pasteurization of all milk not of Grade A Raw quality should, of course, come a stringent definition of pasteurization and a thorough system of inspection of pasteurizing plants. Systems of this kind are in force in 12 of the cities studied in this survey.

9. That portion of the milk supply which is not efficiently pasteurized by the holding system should be protected by the tuberculin testing of cattle and by a system of medical inspection of milk handlers. Thirty-nine cities ostensibly require the tuberculin testing of all herds from which raw milk is sold, but the actual enforcement of this regulation is very doubtful. Medical inspection of milk handlers is ostensibly carried out by 17 cities, but here too the completeness of enforcement leaves much to be desired.

10. In addition to the protection of the great mass of the milk supply by grading and pasteurization, it is highly desirable that a small amount of very high grade raw milk should be available, such as is provided through the activities of certified milk commissions. It is encouraging to note that 46 of the cities studied have milk commissions, but the amount of milk produced is, as must always be the case, exceedingly small, amounting to perhaps 500 quarts per day as against the total milk supply of 33,000 quarts per 100,000 population.

11. The amount of money spent for milk control averages a little over $.04 per capita, varying from $.01 to $.13. Even with the development of an adequate system of grading and pasteurization, we are not inclined to believe that the cost of milk control need increase very greatly, since the careful supervision of pasteurizing plants will obviate the necessity of over-frequent farm inspections. We are inclined to believe too that the figure of $.05 per capita would probably cover this phase of health department work.

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REPORT OF THE COMMITTEE ON PROBLEMS OF CANNING

Read before the Food and Drugs Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 15, 1921, and adopted by vote of the Section.

THE work of the year marks substantial progress in the technology of canned foods and in our knowledge of the product. Much has been done in extending information in the industry relating to the details of manufacture. The old order in which the processing of canned foods was a matter of formula followed blindly is being replaced by a scientific knowledge of the principles of processing. The superintendents and responsible workmen are making commendable progress, shown by the intelligence with which their work is done. Until recently canning processes have depended entirely on the experience of practical workers. The time and temperature of sterilization which in their experience yielded products that would not spoil were regarded as sufficient. A systematic study of the requirements of time and temperature had not been made. At the present time a systematic series of processing studies is being conducted by the Research Laboratory of the National Canners Association, and material contributions to the information on the subject are being made by other laboratories.

In August, 1920, a bulletin on heat penetration was published by the Research Laboratory of the National Canners Association, and since that time the work has been materially extended by the study of the heat penetration of additional products, and of the same products under additional conditions. During the present year a bulletin on the same subject, but relating especially to home canning, was published by Magoon and Culpepper (Bulletin 956, U. S. Dept. of Agriculture). These bulletins are being closely studied by commercial canners and also by home canners.

In order to utilize the results of such investigations it is necessary to know in detail the heat resistance of bacterial spores. Articles on this subject have been published in the *Journal of Infectious Diseases* by Bigelow and Esty with regard to typical thermophilic organisms to which the spoilage of canned corn is largely due, and by Weiss relating to the spores of *B. botulinus*. The influence of acidity on the heat resistance of bacterial spores was discussed in the articles just mentioned, and a bulletin was published by the Research laboratory, National Canners Association, giving the hydrogen ion concentration of the juices of canned foods and showing the influence of the sterilizing process on the hydrogen ion concentration of typical canned foods. These results are being correlated with each other and a formula has been developed with which it is possible to calculate the theoretical time required in canning a particular food to destroy the spores of an organism of known heat resistance, processing at specified temperature. With this formula theoretical processes are being calculated which will make possible a systematic study of processing.

Manufacturers of evaporated milk have found it difficult to judge of the suitability of milk for evaporation from the results of preliminary examination. They ordinarily make their judgment by smelling the milk and by a quick test of its acidity. It has been pointed out by several writers that there are factors other than acidity, as for instance the thickening when heated to a high temperature and the character of the precipitate formed on the addition of alcohol. Rogers and his coworkers have studied a form of thickening in evaporated milk which simulates thickening caused by some forms of spoilage but is due to other causes relating probably to the composition of milk.

The progress which has been made in the spread of information regarding the technology of canning is not represented by publications. It has been accomplished mostly by correspondence and personal conferences within the industry. A number of publications have been issued on the subject. For instance, Dill of the Bureau of Chemistry has published a number of articles relating to the technology of canning and preserving fish. Hunter of the Bureau of Chemistry and Fellers of the National Canners Association have made substantial contributions to our knowledge of the bacteriology of salmon. Cruess has published several articles relating to the technology of the canning of fruits, with particular reference to olives.

During the last year material contributions have been made to our knowledge of vitamines as applied to canned foods. Writers discussing this subject in the past have been at the disadvantage of lacking information regarding vitamines or regarding canning processes, or both. As a result many of the comments that have been published regarding the influence of the canning process on the vitamine content of food are erroneous. During the last year some work has been done with special reference to canned foods, and numerous studies have been made of the influence of heat and oxidation on vitamines, and the results obtained may be applied to canned foods.

Several articles have been published during the year by different workers showing that the resistance of all three vitamines to heat is much greater than has been generally supposed. It has also been shown that much of the destructive action formerly attributed to heat is due to oxidation. It has been shown that vitamines A and B are not destroyed to an appreciable extent when given a more severe heat treatment than is practiced in canning foods, and that even vitamine C withstands a greater amount of heat than had been formerly supposed. With canned tomatoes, for instance, the antiscorbutic vitamine content is almost unimpaired. Much work on this subject remains to be done. Our knowledge of the quantitative occurrence of vitamines is fragmentary at best, and a comparative study of the amount of vitamines in the raw product, and the same product after being cooked in a fresh state for the table, and after being canned has not been made.

In discussing the progress that has been made in the canning industry during the year just past, as for several years previously, special mention should be made of the studies on the subject of food poisoning. These do not refer to canned foods especially; in fact, it has been amply demonstrated that food poisoning from all sources is far less frequent than is usually supposed even by the medical profession, and that canned foods are only responsible for a small percentage of the cases of real food poisoning that occur.

The canning industry has thought it wise, however, to contribute to the scientific work of the day the expense of a systematic study of all types of food poisoning. The progress made by Rosenau and his associates on the general subject of food poisoning has been referred to in previous reports of this Committee. For something like two years an intensive study of botulism has been made in two sections of the country. Rosenau and his associates are conducting an investigation on this subject in Harvard Medical School, and on the Pacific Coast a commission consisting of Meyer and Dickson of the University of California and Leland Stanford University, respectively, and Geiger of the U. S. Public Health Service are conducting a study of B. botulinus.

Numerous articles have been published from all institutions represented, and an extensive publication regarding the etiology of botulism by the Botulinus Commission, just referred to, has been prepared and will shortly be published in the *Journal of Infectious Diseases*. The publicity given the few outbreaks of botulism produced by canned foods has created a much exaggerated impression regarding the prevalence and danger of this form of poisoning. As compared with many other diseases the number of cases of botulism has been insignificant. Moreover, the outbreaks that have occurred have been due to food canned in the home to a much greater extent than the commercially canned product. Notwithstanding this fact, the importance of obtaining further information regarding the treatment of the disease, and information which may make it possible to entirely safeguard canned foods, whether prepared commercially or in the home, is fully recognized by the canning industry as well as by the appropriate government organizations. Thom and his associates in the Bureau of Chemistry have published a number of articles on the subject. The U. S. Public Health Service has also been active, and the California State Board of Health has given the matter careful attention.

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RESULTS OF A HEALTH PROGRAM IN A SUMMER PLAY SCHOOL

HENRY HARAP
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EVERY summer the public-school systems of the great cities dismiss the children of their congested districts for ten weeks, to pursue what random occupations a tenement district offers. The Hudson Guild Play School was established to direct the physical and moral development of a limited group of children during the summer vacation. Because the school could accommodate only a small group, physically underdeveloped children were selected. Health improvement of the group was the most important aim, although considerable attention was given to moral improvement.

THE CHILDREN

One hundred ten children were selected on the recommendation of a doctor who examined 250 children. Twenty-eight of these were fatherless and 26 motherless; the mothers of thirty of the children worked in factories or homes. The average family consisted of five persons. Forty-three children were of Irish parentage, 28 of Italian, and the remainder of French, Spanish, German, Polish and Russian parentage. Two-thirds of the fathers were unskilled laborers. Of these, 30 per cent were longshoremen, and the rest were day laborers, truck drivers and iron workers. The skilled workers were chiefly carpenters and barbers.

As to general appearance, our children as a whole when they first came to us were rated 6.9 by our nurse, 10 being the maximum rating. In other words, at the beginning of the Play School season, the appearance of our children was barely fair. We observed the grossest absurdities in dress. We found children with winter underwear, warm shirts and trousers, long winter stockings which were held up by tightly bound strings or rubber bands, and heavy shoes. We inferred that many of the mothers of our children were not inclined, or were not able, to give much time to frequent and thorough laundering, particularly of undergarments; that the supply of wearing apparel was not sufficient to allow for necessary changes of undergarments, waists, dresses and stockings. We noticed that the use of clean handkerchiefs and towels was not common.

Intellectually, our children comprised a fairly normal group. Of the 46 children tested by the Standard Revision of the Binet-Simon test, we found 6 bright children, 25 normal children, 13 backward children, 4 on the borderline between backwardness and feeblemindedness, and one probably feebleminded.

The interests of our children were those customary to the tenement district child, viz., cheap movies, street and seasonal games, the candy store, petty gambling, household chores, the public park, and the waterfront. Most of the children attend the public schools, but some attend the parochial schools of the Catholic church.

The medical examination previous to admission of the children gave us information concerning the physical condition of our group. We found that the average child was 4.66 pounds below the normal weight for his age and height. Seventy-four per cent were below the normal weight for their age and height. Eight children were more than 10 pounds under weight. The average rating of our group, as taken from the doctor's diagnosis of the general condition of the children, was 7.2, 10 being the maximum; or about 7 per cent below the normal general condition of health. Fifty per cent were rated below normal; 40 per cent were normal; and 10 per cent were above

normal in general condition. A summary of the physical defects is as follows: Sixty-one per cent were in need of dental treatment; 37 per cent required treatment for enlarged tonsils and adenoids; 11 per cent had physical deformities; 5 per cent had skin defects.

The children attended the Play School from 9 a. m. to 4:30 p. m. for 39 days, beginning July 6 and ending August 27. The daily program consisted of manual and physical activities, a lunch period, a rest period, a milk period, a shower bath, and a library period. The activities included sewing, knitting, clay modeling, dramatics, dancing, cobbling, carpentry, games, physical exercise, choral singing, health instruction, outings, movie entertainments, savings bank, and a morning assembly conducted entirely by the children.

THE HEALTH PROGRAM

The poor physical condition of our group required a special health program. Every child was subjected to a physical examination at the beginning and end of the Play School term. Every group was weighed once every week. Interest in increasing weight was stimulated by the nurse, and, as the season progressed, by announcements of gain or loss in weight. The children were inspected by the nurse every morning, a record being made of general appearance on a basis of 10 points. These records were used to stimulate improvement. The physical defects discovered by medical examination were brought to the attention of parents and in numerous cases steps were taken to correct the defects. Defects of the teeth were treated in our own dental clinic, which handled 63 cases.

A smooth and effective undercurrent of health information and practice ran through all the children's occupations. In the assembly we had several five-minute talks by the nurse. Incidental references to hygiene and clothing were made by the teachers. The nature of the breathing process was discussed in relation to singing and to health. The washing period before lunch and the resting period after lunch were object lessons in themselves. The program of physical exercise, play and games was the most important element in incidental health instruction. In the carpentry shop, tooth-brush holders, medicine cabinets and towel racks were made, with a view to home use. In the library, books on hygiene and sanitation were placed within reach of the children. The duties of the sanitary officers and the incidental cleaning, brushing and mopping which the children were called upon to do were practical lessons in cleanliness.

In the sewing and knitting classes, handkerchiefs, sweaters, middies, and bloomers were made with a view to contributing to the personal health of the children. The children acted out health situations in connection with dramatics. The work of cobbling shoes emphasized keeping the feet dry and protecting them from cuts and bruises.

The school lunch, which was prepared by an expert dietitian, consisted of vegetables, bread and butter, dessert, and milk. Special assistants paid attention to the formation of proper eating habits. Ten minutes were set aside for washing hands before the lunch period. In the middle of the afternoon every child had a cup of milk and a slice of bread. The daily bath was a practical lesson in health and cleanliness.

The effect of our health program was studied in terms of the measures of (1) general appearance, (2) physical condition, and (3) weight at the beginning and end of the Play School term. A small control group brought out our results more sharply. The data follows:

GENERAL APPEARANCE

In general appearance, our children showed an improvement of 20 per cent over their initial condition. This was to be expected in view of the daily inspections, the health instruction, and the gen-

eral emphasis on health and cleanliness.

Table I shows the distribution of nurse's inspection ratings and the gains The average initial rating was 6.93, the average deviation from the average being 1.11. The average gain was 1.38, the average deviatoin from the average being 1.3. The apparent discrepancy between the average gain as shown in the table of gains and the difference between the average initial and the average final rating is due to the fact that some children were not inspected either at the beginning or at the end of the Play School term.

TABLE I

NURSE'S INSPECTION RATINGS

Rating	Initial rating Number of children	Final rating Number of children
5 to 6	33	7
6.1 to 7	32	17
7.1 to 8	23	27
8.1 to 9	15	26
9.1 to 10	7	27
	110	114
Average initial rating	6.93	
Av. dev. from average	1.11	
Average final rating	8.3	
Av. dev. from average	1.1	

IMPROVEMENT

Gain in points	Number of children
–3 to–2	2
–1.9 to–1	5
–.9 to 0	13
0 to 1	16
1.1 to 2	26
2.1 to 3	21
3.1 to 4	9
4.1 to 5	3
	95
Average gain	1.38
Av. dev. from average	1.3

PHYSICAL CONDITION

At the beginning of the Play School term 50 per cent of the children were below normal; 40 per cent were normal, and 10 per cent were above normal. At the end of the Play School term 30 per cent of the children were below normal; 46 per cent were normal, and 24 per cent were above normal. The average improvement of our children was 18 per cent. A special case will illustrate the degree of improvement. On June 12 Susie Martino was rated 6 by our doctor; on July 26 she was rated 8, and on August 26 she was rated 9. In this case, which, of course, was exceptional, the child developed from a decidedly subnormal condition to a decidedly supernormal condition. The explanation of this is the story of the Play School.

Table II shows the distribution of the doctor's ratings of general condition at the beginning and at the end of the Play School term. The distribution of gains is also given. The average initial rating was 7.2, the average deviation from the average being 1.12. The average final rating was 7.94, the average deviation from the average being .62. The average gain was 1.28. The average number of points below normal at the beginning of the Play School term was .55 or 7 per cent. The average number of points below normal at the end of the Play School term .19 or 3 per cent.

TABLE II

DOCTOR'S RATING OF GENERAL CONDITION

Rating	First examinat'n Number of children	Final examinat'n Number of children
5	6	0
6	10	3
7	27	22
8	35	39
9	8	19
10	2	2
	88	85

IMPROVEMENT

Gain in points	Number of children
–1	8
0	20
1	25
2	14
3	2
	69
Average initial rating	7.2
Average dev. from average	1.12
Average final rating	7.94
Average dev. from average	.62
Average gain	1.28
Average dev. from average	.65
Average gain over initial rating	18%
Average number of points below normal at beginning	.55 or 7%
Average number of points above normal at end	.19 or 3%

	Initial exam.	Final exam.
Below normal	50%	30%
Normal	40%	46%
Above normal	10%	24%

NOTE: The normal condition is 7.75. Not all children examined at the beginning of Play School were examined at the end, and vice versa. This accounts for the difference in totals.

WEIGHT

It is significant that four-fifths of our children gained weight, each child in this group gaining nearly two pounds. This gain did not bring the children to the normal standard for their age and height, which indicates that the children are in need of further physical attention.

TABLE III

Deviation from normal in pounds	Initial weight Number of children	Final weight Number of children
-18 to -15	1	0
-14.9 to -12	2	1
-11.9 to -9	5	2
-8.9 to 6-6	21	12
-5.9 to -3	30	17
-2.9 to 0	22	21
0 to 3	18	21
3.1 to 6	3	5
6.1 to 9	2	0
9.1 to 12	..	1
	104	80

IMPROVEMENT

Gain in pounds	Number of children
-2 to-1	2
.9 to 0	6
0	8
0 to 1	24
1.1 to 2	28
2.1 to 3	10
3.1 to 4	6
4.1 to 5	2
	86

Average number of pounds below normal at beginning of Play School.... 4.66
Average deviation from the average... 2.75
Average number of pounds below normal at end of Play School..... 2.24
Average deviation from the average.. 3.27
Average gain 1.33
82% of the children gained; 9% remained the same; 9% lost weight.

	Initial weight	Final weight
Below normal	74%	64%
Above normal	26%	36%

NOTE: Not all children weighed at the beginning were weighed at the end of the Play School term. The gain is calculated for children who were weighed both at the beginning and end only.

Table III gives the distribution of the number of pounds above or below the normal weight at the beginning and at the end of the Play School term. The normal weights were derived from Dr. F. D. Wood's weight table. The distribution of gains is also given. The average number of pounds below normal for each child at the beginning of the Play School term was 4.66, the average deviation from the average being 2.75. The average number of pounds below normal at the end of the Play School term was 2.24, the average deviation from the average being 2.27. The average gain per child was 1.33 pounds, the average deviation from the average being .66. At the beginning of the Play School term 26 per cent of the children were above the normal weight, the average being 2.4 pounds above normal; 74 per cent were below normal weight, the average being 5 pounds below normal. At the end of the Play School term 36 per cent of the children were above normal weight, and 64 per cent were below normal weight. Nine per cent of the children lost weight; 9 per cent remained the same; 82 per cent gained.

CONTROL GROUP

Several of our children were examined before July 6, the opening of the Play School, and were not admitted. Fortunately several of these children were re-examined by the same doctor for another purpose during the month of August. This made it possible for us to compare the physical changes of non-Play School children with those of the Play School children. This control group is very small, but it is our only means of checking up our results and we use the data with apology.

CONTROL GROUP: GENERAL CONDITION

Table IV shows the distribution of the initial and final ratings of general condition of the control group. The doctor's average initial rating of general condition was 8.25, the average deviation from the average being .6. The average final rat-

ing was 7.7. The average deviation from the average being .7. The average loss in general condition was .55 points, the average deviation from the average being .73. Here again the general condition of the children who were not admitted to the Play School showed a deterioration while the Play School children showed an improvement.

TABLE IV

CONTROL GROUP: DOCTOR'S RATING OF GENERAL CONDITION

Rating	Initial examinat'n Number of children	Final examinat'n Number of children
7	1	5
7.5	1	0
8	4	3
9	4	2
	10	10

IMPROVEMENT

Gain in points	Number of children
-2	1
-1	4
.5	1
0	3
1	1

Average initial rating	8.25
Average dev. from average	.6
Average final rating	7.7
Average dev. from average	.7
Average loss	.55
Average dev. from average	.73

CONTROL GROUP: WEIGHT

Table V shows the distribution of the initial and final weight of the control group. The average number of pounds below normal on July 2 was 5.1, the average number of pounds below normal on August 15 was 4.8, the average deviation from the average of the former being 3.7 and of the latter .4. This small group suffered a loss in weight of .3 of a pound, while our Play School group enjoyed a gain in weight of 1.33 pounds.

TABLE V

CONTROL GROUP WEIGHT

Deviation from normal in pounds	Initial weight Number of children	Final weight Number of children
-15 to -12	1	1
-11.9 to -9	1	1
-8.9 to -6	2	2
-5.9 to 3	1	1
-2.9 to 0	2	2
0 to +3	1	1
	8	8

IMPROVEMENT

Gain in pounds	Number of children
-1 to 0	4
0	4
	8

Average number of pounds below normal at beginning of Play School	5.1
Average deviation from average	3.7
Average number of pounds below normal at end of Play School	4.9
Average deviation from average	3.9
Average pounds gain	.2

We have attempted to present a brief statement of the physical needs of a group of tenement children, a health program during the summer months to meet these needs, and the results of such a program. The results indicate the possibilities of utilizing the vacation months for health improvement of city children.

How Does Your City Stand on These?

Does your city health work need to be reorganized?

Is it the practice in your city to destroy school books and supplies furnished at public expense and used by pupils with contagious disease?

Is your city effectively regulating soft-drink places?

Have you taken cognizance of the fact that adequate filtration and sterilization of your water-supply is necessary to protect public health?

These questions are asked by the *American City*, April, 1922, pp. 308-9.

A NEW VENTURE IN SCHOOL MEDICAL INSPECTION

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Abstracted from paper read before the Joint Meeting of the Public Health Administration and Child Hygiene Sections of the American Public Health Association at Fiftieth Annual Meeting, New York City, November 18, 1921.

SCHOOL medical inspection and nursing service in Detroit are under the supervision of the Department of Health.

The old time plan of part-time physicians making inspections was unsatisfactory in a number of particulars. Compensation was insufficient to excite the desired interest. Defects were not reported in a uniform manner. Supervision and checking of work was most difficult.

The primary object of school medical inspection is to find and overcome physical defects as early in the school life of the child as possible. The inspection of the entire school population annually is a task of such magnitude that it is rare to find a city where this is adequately done. Detroit has concentrated attention on the first-grade and special cases from other grades.

At present Detroit is testing out the plan of having the teachers make preliminary examinations of the pupils, school medical inspectors checking only those referred to them, with no intention of converting teachers into physicians, but simply giving them the chance to acquire the information about children's health which an intelligent mother should have. In 1921 there were 60 nurses available, allowing one nurse to 2,500 pupils. Under the new system vaccination and diphtheria immunization are in the hands of four men specializing on this work, while disease diagnosis is in charge of eight men assigned to districts. Suspicious cases of disease are referred by nurses to the main office, and thence they are given out to the proper district physician. Examinations of physical defects are carried out by twelve men who work in teams of three, each team being assigned to a district. Diagnosticians fit their work in with their private work, and vaccinators and physical examiners give half time, that is, from 8:30 to 11:30 each day.

There is no physician attached to a school; the clinics are conducted by the nurses; suspicious cases are excluded on nurses' recommendations, and diagnosticians notified. In visiting the homes diagnosticians find some minor afflictions, not communicable, but there is no indication that the nurses are missing any true cases of contagion.

A graded scale is used in marking defects. The marking of tonsils is done according to the following instructions:

00—Tonsils have been removed, the base of the tonsil bed is smooth, shows no tonsil, and child knows that it has been removed.

0—Normal, tonsil even with its adjacent pillar, or distinctly behind it.

1—Slightly enlarged or protruding slightly from its surrounding bed.

2X—Tonsil large enough to reach half way across the middle line of the mouth.

3X—Tonsil touching or almost touching its fellow on the opposite side.

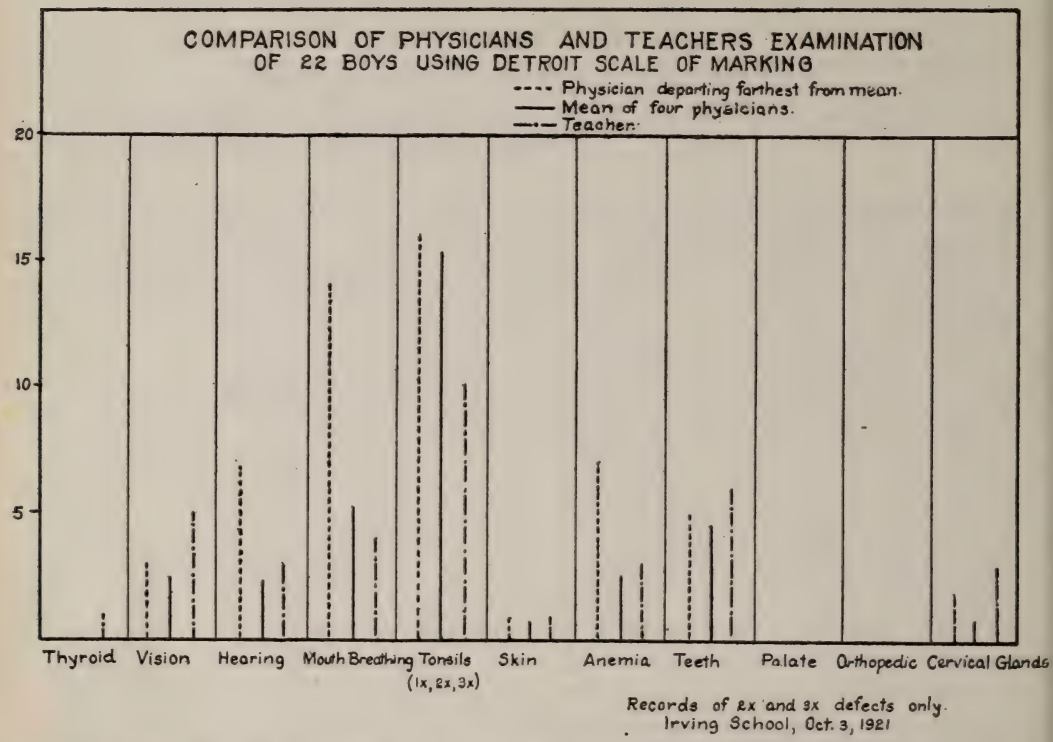
In case of infected tonsil add P. If a No. 1 tonsil is infected, add X to draw attention of nurse. (Count this as a defect.)

If there is a difference in the size of the two tonsils, record the worse condition.

It is to be understood that a tonsil marked X is the basis of a recommendation for examination by a private physician or clinic, the decision as to the removal of the tonsil being left to this subsequent examination.

Fourteen items are covered in the examination, and all are graded on the above basis. Only X cases are recognized as defects, and recommendation slips are sent home only for this class. With each examining team there is a squad nurse. The nurse attached to the school is always present at the examination, and these two, together with a teacher, take

CHART 1



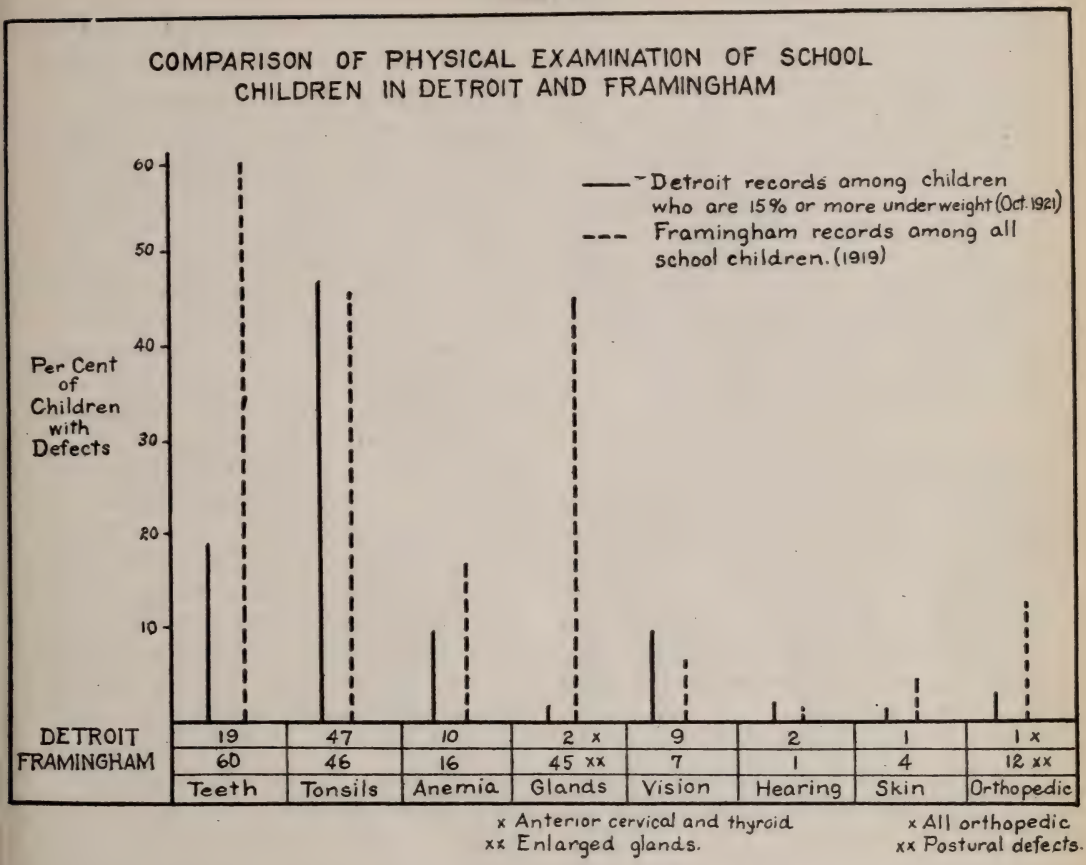
notes while the physicians devote their entire attention to the examination.

Each physician is assigned a list of defects to look for. One observes mouth breathing, tonsils, teeth, palate, cervical glands and thyroid, another tests vision and hearing, and still a third observes heart, lungs, skin, anemia, orthopedic defects, and phimosis. The children line up and pass before these three, who call off their findings in terms of the scale, and the nurse or teacher makes entries on the children's cards. These details are forwarded to the central office, recommendation slips are made out to the parents, and the school nurse makes a record of all defects to be followed.

In the examination begun October 1, 1921, all children 15 per cent or more underweight were examined. No others were examined at this time. The next step is to begin all over again, this time examining all first-grade children and those of other grades recommended by the nurse. The remainder of the time is spent on fifth-grade children, with no pretense of examining the entire school.

We are interested in securing accurate information so that the condition in one school may properly be compared with those in another. On the first day all 12 examiners came together, and the teams independently examined 22 boys who had previously been examined by teachers and graded in the same manner. The opinion of the teacher coincided very closely with the median opinion of the physicians (See Chart I.) In fact, the physician having the most extreme opinion showed far greater deviation from the median of all four physicians than the teacher. The necessity for having all physicians thoroughly familiar with the scale of marking and of reporting like defects by the same terms is shown by this test. For instance, in the grading of the 22 boys for anemia the physician on Squad 1 reported 2 cases; Squad 2, one case; Squad

CHART 2



3, none; Squad 4, seven cases; the teacher 3 cases. One can readily appreciate the diversity of reports from schools if these physicians had been working independently in different sections of the city. In mouth-breathing, Squad 1 reported one case; Squad 2, five; Squad 3, two; Squad 4, fourteen cases; and the teacher, four cases. At the conclusion of this test the cases on which there was wide disagreement were brought before the four physicians concerned and reëxamined. Discussion followed, and an agreement was reached as to how the children should be marked. The same test on another group was tried two weeks later with more harmonious results.

DISTRIBUTION OF DEFECTS ACCORDING TO DETROIT SCALE

At the time of writing, 4,056 children in 80 schools have been examined, all of these children being 15 per cent or more underweight. The proportion of each type of defect is shown in the following table:

Defects	No.	Defects per 1000
Thyroid	76	18
Vision	368	91
Hearing	84	21
Mouth-breathing	374	92
Tonsils	1922	474
Teeth	782	193
Cervical Glands	52	13
Skin	50	12
Anemia	386	95
Deformed Palate	6	1
Cardiac	250	62
Lungs	148	37
Orthopedic	27	7
Phimosis	519	(boys) 209

(No. of boys, 2479.)

The greatest item is tonsils, 47 per cent of this class of children showing either enlarged or infected tonsils. By defects

we refer only to X cases. The cases graded as 1, or slightly abnormal, are not classed as defects. Nineteen per cent of the group have defective teeth. There were 3,018 children, or 74.5 per cent, with at least one or more X defects.

To make these findings with this type of grading more intelligible, we have presented in chart form some of the results alongside of the findings reported from an examination of over 2,000 school-children without regard to weight, in Framington, Massachusetts, in 1919.

CHECKING THE TEACHERS' EXAMINATIONS

To test the feasibility of the teachers' examination, complete examinations have now been made by the teachers in three schools, representing about 2,500 children. The same children were later graded by the physicians. As a rule, the teacher reported more defects than the physicians or, in other words, she erred in the right direction.

If this plan is perfected, it would be the policy to have all children examined by the teachers at the opening of school. There would be instituted a physical inventory week, in which the children would be graded, and then the medical teams would visit the schools and reëxamine only those selected as having possible defects. Recommendation slips would be sent to parents in all cases in which the teachers' findings were confirmed by the physicians. The teachers are quite capable of grading thyroid, vision, hearing, mouth-breathing, tonsils, skin, anemia, teeth, palate, cervical glands and orthopedic defects, though they cannot examine for lung and heart affections.

The system is believed to constitute a marked step forward in this field of public health. Teachers would become intimately acquainted with the physical capabilities of their charges, as well as their mental capacities. The extension of this work would include the introduction of courses in physical examination into the normal and teachers' training schools. The Detroit Health Department is sufficiently impressed with the advantages of this program to warrant a continued study of the subject.

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THE DETERMINATION OF THE VALUE OF CERTAIN SOAPS IN DISINFECTING WALL AND FLOOR SURFACES

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THESE experiments were performed in an attempt to determine definitely the germicidal value of certain soaps when subjected to actual conditions encountered in practical application.

The plan outlined and followed is to have an area made with certain materials resembling those found on walls and floors, protected by means of a glass cover in such a manner that extraneous organisms may be kept out. This area is to be inoculated with a definite quantity of test organisms, and is then subjected to the process of washing with the soap in question,

after which cultures are made to determine the destruction of bacteria which has occurred.

The area (wall or floor) is represented by a box, the bottom of which is made of cork, one-half covered with white oil cloth and the other left unlined, measuring 12.5 x 15.5 inches, and the sides 2 inches in depth; the top consists of a lid bearing a glass held in a frame which fits snugly over a ridge on the sides to make practically an air-tight joint.

The average length of time consumed to wash with soap and water and to rinse this area was found to be 34 seconds.

TABLE I

Area	12.5x15.5
No.	Time
1	35 sec.
2	38 sec.
3	30 sec.
4	32 sec.
5	35 sec.
Average	34 sec.

To determine the number of bacteria necessary to be applied to such an area to simulate a supposedly heavy contamination in cases of disease, a number of areas 12.5 x 15.5 were outlined on various walls of the laboratory. None of these had received any voluntary contamination. One was selected to test the method of culture, which was applied as follows: The area was roughly divided into four equal parts, and for each part a cotton swab on wooden applicator was moistened in 1 c.c. of sterile water, rubbed over one section of the area, and rinsed in 1 c.c. of sterile water. The remaining three sections were treated in a similar manner, and the washings collected in the same 1 c.c. of sterile water. This was then poured into a Petri dish and cooled agar added. After incubation, two colonies of spore-forming organisms were the only kind to be found.

The method of culturing was then changed, so that the swabs employed were placed in a bottle containing 100 c.c. sterile water. This was shaken until the cotton was well distributed and then 1 c.c. removed to a Petri dish and cultured. The results of these tests on various areas are given in Table II.

The observations made are that comparatively few organisms are present on a surface exposed to the light and circulating air, when the surface has been dry for some time, and that most of those organisms found belong to the spore-forming classes.

As demonstrating the number of bacteria to be found on floors and tables,

TABLE II

WALL AND TABLE

Place	Area	Turbidity in 100 c. c.	No. in 1 c. c. Planted	Total in 100 c. c.
R. R.	12.5x15.5	Marked	0	0
R. R.	12.5x15.5	Marked	1 spore former	100
R. R.	12.5x15.5	Marked	1 spore former	100
R. R.	12.5x15.5	Marked	1 staphylococcus	100
R. R.	12.5x15.5	Marked	2 spore formers	200
R. R.	12.5x15.5	Marked	3 spore formers	300
R. R.	12.5x15.5	Marked	0	0
B. R. Sink	12.5x15.5	Marked	1 spore former	100
B. R. G. Table	12.5x15.5	Marked	2 staphylococci	200
			1 spore former	100
B. R. Dark Table	12.5x15.5	Marked	200 spore formers	Infinity

TABLE III
FLOOR AND TABLES

Place	Area	Turbidity	No. in 1 c. c. planted	Total in 100 c. c.
R. R. Near desk.....	15.5x12.5	Marked	2 staphy. 100 sp. formers	200 staphy.
R. R. Near desk.....	15.5x12.5	Marked	Spread over plate	Infinity
R. R. B. Table.....	15.5x12.5	Marked	1 staphy. 2 spore formers	100 staphy. 200
R. R. (Light) Near desk.....	5 hrs. after routine washing	Marked	2 staphy. 100 sp. formers	200 staphy. Infinity
R. R. (Dark) Cool near refrig.	5 hrs. after routine washing	Marked	200 staphy. 1 sp. former	Infinite staphy. 100 sp. form.
Wass. R. Work table.	15.5x12.5	Marked	0 staphy. 1 sp. former	0 100 sp. form.
Wass. R. Floor.....	15.5x12.5	Marked	1 staphy. 3 sp. form.	100 staphy. 300 sp. form.
Hall fl. Near door...	15.5x12.5	Marked	0 staphy. 200 sp. form.	0 staphy. Infinite sp. form.
Hall fl. near door....	15.5x12.5	Marked	2 staphy. 100 sp. form.	200 staphy. Infinite sp. form.
Bat. R.....	15.5x12.5	Marked	1 staphy. 200+sp. form.	100 staphy. Infinite sp. form.

in comparison with the number found on areas of floors and tables recently washed in the routine cleaning of such places by a cleaner unaware of experimental conditions, Table No. III is of interest.

Thus it will be seen that a greater number of probable pathogenic bacteria as well as a greater number of spore-forming organisms are to be found on an area which has been recently washed than on an area which has been dry for some time.

To determine the number of bacteria which will permit a sufficient number to remain on the area after a short period of drying so that this number may be used in the examination of the germicidal soaps, an area 12.5 x 15.5 on a painted wall was given a coat of suspension of staphylococcus aureus and diphtheroids 2 billion per c.c. This area was permitted to dry, and then cultured according to the method hereinbefore described. The results are to be found in Table IV.

From this experiment it was decided to employ the usual suspension of staphyloccus and diphtheroids in a suspension of 2 billion per c.c., and to paint the suspension on with a camel's hair brush, permit the area to dry, then wash with soap and water and rinse with sterile water, and then culture in order to test the efficacy of the soaps. One-half of this area is cork and the other is white oil cloth, to represent both rough absorbing and smooth non-absorbing surfaces. The washings were collected in 1 c.c. of water. The results of the tests on the four preparations examined are given in Table V,

TABLE IV

Place	Area	Time	Turbidity	No. in 1 c. c.	Total in 100 c. c.
R. R.....	12.5x15.5	Immediately after drying	Marked	Infinite staph. & diphtheroids	Infinite staph. & diphtheroids
R. R.....	12.5x15.5	1 hr. later	Marked	200 staph. diphtheroids	Infinite staph. & diphtheroids
R. R.....	12.5x15.5	18 hrs. later	Marked	100 staph. diphtheroids	Infinite staph. & diphtheroids

and represents the total number of bacteria in the washings.

TABLE V

Bact. Susp. 2 bill. -1 c.c	Substance	Before Washing		After Washing		Value	Date
		Cork	Oil Cloth	Cork	Oil Cloth		
"	2% Formaldehyde cream	†††	†††	†††	††	None	4-29
"	10% Formaldehyde cream	†††	†††	†††	†††	None	4-29
"	Cresol Tub Soap	†††	†††	†††	††	None	4-29
"	Fels Naptha	†††	†††	†††	††	None	4-29
"	2% Formaldehyde cream	†††	†††	†††	†††	None	5-3
"	10% Formaldehyde cream	†††	†††	†††	†††	None	5-3
"	Cresol Tub soap	†††	†††	†††	††	None	5-3
"	Fels Naptha	†††	†††	†††	††	None	5-3

††200 to Infinite colonies per plate.
†††Infinity

SUMMARY AND CONCLUSIONS:

1. A method of testing the action of a germicidal soap on surfaces has been given.

2. More probable pathogens are to be found on surfaces recently wetted than on those which have been dry for some time.

3. The germicidal soaps tested did not destroy the test organisms in the length of time usually employed to wash surfaces by the usual procedure of employing soap and water followed by rinsing.

SOME OBSERVATIONS ON THE SANITARY CONDITION OF CONFECTIONS

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THE confections are members of a large group of foods which are often handled in such a manner as to cast doubt on their healthfulness. They are often dispensed by dirty hands, from dirty receptacles, and kept in stores of questionable cleanliness. They are usually eaten without further preparation which would render them free from any undesirable bacteria, should they be present. Wrapping in paper has not been extended to all grades of candy but it is gratifying from the sanitary standpoint that the use of boxes and paper by the manufacturers is increasing.

Not much work seems to have been done on the microbial content of these foods and confections. Cummins[1] published an interesting paper but studied the subject from the view-point of the manufacturer. He also paid most attention to the candies which are dipped in chocolate. Chocolate was found to contain a large number of bacteria, the varieties of which were not determined. Organisms forming gas in dextrose broth and lactose bile were common. No attempt was made, apparently, to determine whether these gas formers were members of the colon group or not. His results are also interesting concerning the longevity of *B. typhosus* and *B. coli* in chocolate. The former organism when inoculated into chocolate in large numbers remained viable for 140 days. During that time the number was reduced from 400,000 to 24,000 per gram. *B. coli* was reduced from 400,000 to 6,200 in 220 days.

The data here reported were secured on samples collected from various types of stores under conditions which usually obtain for the dispensing of such a food. We did not, however, visit what might be called the lowest type of store where sanitary conditions are not heeded. Thirty samples were examined for the numbers and types of bacteria; ten of these samples came from one of Chicago's high grade confectioneries. The other twenty samples were of the lower grades, some

1. Cummins, E. H. Certain Sanitary Aspects of Candy Manufacture. American Journal of Public Health. Vol. 5, No. 11, 1148-1163.

of which were purchased at five and ten cent stores. The latter samples were dispensed in bulk.

The samples were brought to the laboratory in the container in which they were dispensed by the vendor, either in a paper sack or box. After that they were handled aseptically, each sample for examination being removed from the container with sterile forceps and transferred to sterile bottles containing sterile water or salt solution. Quantitative dilutions were made from these water solutions and plates prepared. The bacteriological results are shown in the accompanying table.

TYPES OF CANDIES EXAMINED AND THE BACTERIAL CONTENT

	Types of Candies	Number of Bacteria
1.	Commercial Fudge	1,040
2.	Cocoanut Cubes, Sugar Coated	920,000
3.	Taffy in Papers	2,240,000
4.	Lemon Drops	0
5.	Pink Wintergreen Lozenges	150
6.	Easter Eggs	200
7.	Peppermint Chips	0
8.	Lemon Gum Drops	300
9.	Jelly Beans	50
10.	Butter Cups (Soft Center)	84,000
11.	Pink Peppermint Patties	60
12.	Caramel and Nuts	21,000
13.	Red Cinnamon Drops	0
14.	Butterscotch	738
15.	Bonbon	250
16.	Caramel Fondant with Nuts	500
17.	Green Easter Egg Basket	28
18.	Maple Divinity with Nuts	40
19.	Sweet Chocolate (Bulk)	1,610
20.	Chocolates in Boxes	9,232
21.	" " "	2,095
22.	" " "	98,600
23.	" " "	50
24.	" " "	2,070
25.	" " "	5,604
26.	" " "	183
27.	" " "	1,400
28.	" " "	1,500
29.	" " "	216
30.	Home Made Fudge	216

The bacteriological results were, in some cases, unexpected. The cheaper grades of candy were usually exposed for sale in large cases separated into compartments for the various kinds. The clerks removed the candy from these compartments either with scoops or with their hands. In this manner the hands might contribute undesirable microörganisms to candy. The use of the scoop for dispensing candy is certainly to be desired.

The bacterial content of candies seems to depend more on the presence of certain constituents than on the methods by which they are dispensed. Those made with large amounts of the volatile oil and similar flavors, such as menthol, wintergreen, cinnamon, etc., contained few bacteria, or were sterile. Other varieties like fudge contained many microörganisms. Those with soft centers of chopped figs or cocoanut had the greatest number of bacteria. Sample 2, cocoanut cubes, had 920,000 bacteria per gram. Sample 13, red cinnamon drops, was sterile. In light of the work of Bachmann,[2] Hoffman and Evans,[3] we have a ready explanation of these data. Cinnamic aldehyde, the important constituent of cinnamon, and eugenol, the important constituent in cloves, were found to possess germicidal properties in food preservation. They seem to function in the same manner in candy. Candies made from peppermint and such other materials have a low content of microörganisms on account of the germicidal properties of the flavor.

The bacterial counts secured on the real hard candies seemed to be lower. The highest number was secured from "taffy", which was pulled mechanically in the window of a local candy store. It was pulled by machinery, cut into pieces, covered with starch, and wrapped in paper. The high bacterial content of 2,240,000 per gram secured on this candy probably came from the air, the hands of

2. Bachmann, F. M. Inhibiting Action of Certain Spices. *J. Ind. Eng. Chem.*, 1916, 8, 620-623.

3. Hoffman, C., and Evans, A. The Use of Spices as Preservatives. *J. Ind. Eng. Chem.*, 1911, 8, 835-838.

the manipulator who wrapped it, and the starch.

In contrast with these candies, which represent the lower grades, there are the ten samples from a high class store in Chicago which may be regarded as representing a better grade of candy. The counts on these samples varied from 50 to 98,600, which is little different from those secured on the lower grades of candy. Here again those samples filled with fruits and figs had the larger counts. The manner of handling did not seem to have much significance in determining the bacterial content.

While the numbers of bacteria are interesting, the types are of still more interest. Search was especially made for those bacteria indicating fecal pollution, especially *B. coli*. Specimens from the water solution of the candy were inoculated in decimal dilutions into lactose broth fermentation tubes. If gas was formed in these tubes the routine procedures of the AMERICAN PUBLIC HEALTH ASSOCIATION were applied to determine the characters of the gas former. Gas was secured in some of the fermentation tubes, but no member of the colon group could be isolated. Investigation of this showed that gas in the presumptive test was due to members of the anaerobic spore forming group. The presence of these organisms was shown by inoculations into sterile litmus milk, rendered anaerobic by Wright's method, in which the curd was quickly peptonized. A strong odor of butyric acid was also evident.

The cultural and morphological characteristics of these strains were studied according to the descriptive chart of the Society of American Bacteriologists. Practically all of the bacteria were spore formers and proteolytic in nature. The other characteristics are not sufficiently significant to list in a paper of this nature since we are interested only in those bacteria of sanitary significance.

Mold spores were common. Yeasts were not isolated, although there is little reason to suppose that they were absent.

One experiment was initiated to determine the longevity of bacteria in candy. Fudge was prepared according to the usual methods and heavily seeded with cultures of *B. coli* and *Erythrobacillus prodigiosus*. After four months storage under dry conditions viable cells of both organisms could be isolated. Such experiments indicate the importance of handling candy under ideal sanitary conditions. A typhoid carrier might disseminate typhoid fever if he were allowed to assist in the preparation of the candy or to handle it during vendition.

SUMMARY AND CONCLUSIONS

1. Bacteria of the colon group were not encountered in thirty samples of candy.

2. The bacteria in candy are in the dormant condition and are not carrying out their usual metabolic activities.

3. Spore-forming bacteria predominate.

4. Mold spores were encountered on practically all of the samples.

5. The use of certain volatile oil and allied flavors has much influence in determining the bacterial count. Cinnamon and peppermint were found to possess decided repressive action.

6. Candy which is infected, artificially or otherwise, will maintain the bacteria in the living condition for a protracted period.

7. Candy is no more of a potential danger in the spread of disease bacteria than many other foods which are eaten in the raw condition.

THE EFFECT OF PEPTONE UPON THE TOXIGENIC PROPERTY OF B. DIPHTHERIAE NO. 8

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Read before the Laboratory Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 14, 1921

IT is known to all laboratory workers who are familiar with the production of diphtheria toxin that the strain of *B. diphtheriae* used in obtaining a potent toxin is called No. 8. This strain was isolated by Dr. Williams in the summer of 1895, and so stable has been its toxigenic property that it is used not only in the serum laboratories of the United States but in those of England and Europe as well.

The idea that different cultures of this strain should vary in their toxic productions was not entertained up to about 1916. However, from time to time requests for new transplants of No. 8 had been received at this laboratory from other workers who said that their cultures had lost the ability to produce a potent toxin. Previous to 1914 our strain was still producing a potent toxin, though with some irregularities in strength.

More recently, and coincident with the reports from other laboratories, the potency of the toxin produced at the Bureau of Laboratories has shown a marked decline. The average toxicity of the years 1914, 1915 and 1916 was 1-200 (or less) as compared with an average potency of 1-350 — 1-400 for the years 1911, 1912 and 1913.

In the summer of 1916, the writer was privileged to work a few weeks at the Pasteur Institute in Paris, and to observe the preparation and inoculation of the diphtheria toxin broth. This procedure consisted of seeding Martin peptone broth[1] in Fernbach flasks with fairly large amounts of broth culture of No. 8*.

The usual routine for the preparation of diphtheria strain was as follows:

> The stock culture was kept on coagulated oxserum while the other culture was cultivated entirely on Martin peptone broth and was transferred three times weekly. The culture on serum was sub-cultured every four weeks and was not used for toxin production unless the broth culture became contaminated; in such case a fresh culture in Martin peptone broth was made from the serum culture. How often recourse to this culture was made, the writer does not know, but from the careful technique employed one would say, rarely, if ever.

On the writer's return to the Bureau of Laboratories several experimental preparations of diphtheria toxin were made. The method of the Pasteur Institute was used, as well as their culture of No. 8 which had been brought back to New York. The results were so superior to those obtained by employing Witte peptone broth and our own culture of No. 8 that in January 1917 Martin peptone broth inoculated with the Pasteur culture of *B. diphtheriae* No. 8 was adopted as our method of toxin production. Since we were following as closely as possible the Pasteur method, we used the same procedure for the propagation of the culture of *B. diphtheriae*.

Comparative tests of our culture of No. 8 with that of the Pasteur No. 8 were made at Dr. Williams' request. The first two or three tests showed such a marked difference in favor of Pasteur No. 8 that we decided to see if, after a cultivation of several months or longer on Martin peptone broth, our No. 8 culture would produce as high a toxin in

1. Martin, Louis. Annales de l'Institut Pasteur, vol. 12, p. 26. 1897.

*This culture had been taken to the Pasteur Institute in 1896 by Dr. Williams.

Martin peptone broth as the Pasteur No. 8.

To differentiate between these two cultures of the same strain of No. 8 we have called the culture which has been propagated exclusively at the Bureau of Laboratories, "Research No. 8," whereas the culture obtained from the Pasteur Institute is designed as "Pasteur No. 8." These two cultures were inoculated in Martin peptone broth December 28, 1916, and transferred three times weekly in this medium.

At about the same time these cultures were inoculated similarly into Witte peptone broth, Research No. 8 being planted December 23, 1916, and Pasteur No. 8 December 28, 1916, and were transferred three times weekly.

In the summer of 1919 a second culture of No. 8 was obtained from the Pasteur Institute, and this was planted August 19, 1919 in Martin peptone broth, Berna peptone broth and Witte peptone broth; it was designated as "Pasteur 2 No. 8."

The records of these cultures, that is, the date each was planted in a different medium, the number of transfers weekly, together with the date and result of the planting to determine purity were kept on separate cards.

In order to obviate any possibility of the substitution of one medium for another while making the sub-cultures, the following procedure was adopted:

The cultures Research No. 8, Pasteur No. 8, and Pasteur 2 No. 8 in the Martin peptone broth were kept in a different container from the same cultures in the other peptone broths. At the time of transferring, only one container with its respective broth tubes was on the work table, thus avoiding any possibility of a Witte peptone broth tube being substituted for a Martin peptone broth tube and vice-versa.

The dilutions of the filtered cultures for the animal inoculation were made in 0.8 per cent NaCl. In the tables where the toxicity is given as being below 1-100 or 1-200, etc., it indicates that those were the dilutions inoculated and that they did not kill the test animals, or if they did so, not within the time limits. When a toxin is stated to be of a given strength it means that the given dilution killed a 250 gram guinea-pig within the four days, with the classical toxic symptoms. Occasionally it was not possible to obtain pigs weighing 250 grams, but in those tests made with heavier pigs the surplus weight was always discounted in estimating the toxicity. No guinea-pigs weighing below 230 grams were inoculated.

Martin Peptone Broth

The comparative tests of Research No. 8 and Pasteur No. 8 in Martin peptone broth are given in Table 1. It is to be recalled that the cultures were subjected to cultivation in this broth, were transferred three times weekly and were then cultivated under identical conditions. To give the reader the approximate number of generations before the different tests were made the date of starting the cultures in the different broths is given in the tables.

TABLE 1.

TOXICITIES PRODUCED IN MARTIN PEPTONE BROTH BY THREE DIFFERENT CULTURES OF B. DIPHTHERIAE NO. 8 AFTER CULTIVATION IN THE SAME BROTH. TRANSFERS HAD BEEN MADE THREE TIMES A WEEK.

Date of Test	Research No. 8 Cultivation begun December 28, 1916	Pasteur No. 8 Cultivation begun December 28, 1916	Pasteur 2 No. 8 Cultivation begun August 19, 1919
Jan. 19, 1917	1-100	1-400	Not tested
May 31, 1917	1-300	1-400	Not tested
June 30, 1917	Below 1-200	1-500	Not tested
Oct. 11, 1917	Below 1-100	1-300	Not tested
Oct. 19, 1917	1-150	1-800	Not tested
Feb. 2, 1918	1-100	1-200	Not tested
Sept. 19, 1919	1-200	1-600	1-600
Oct. 2, 1919	Below 1-100	Below 1-200	Below 1-200

TABLE I

It will be seen that in one test only Research No. 8 approximated Pasteur No. 8 in its toxic production. In the experiment dated May 31, 1917 Research No. 8 gave a toxicity of 1-300 as compared with a toxin of 1-400 produced by Pasteur No. 8. The greatest difference in their toxigenic powers was shown in the test dated October 19, 1917, when the M. L. D. of Research No. 8 was 1-150 in contrast to a potency of 1-800 produced by Pasteur No. 8. Subsequent comparative tests showed a diminution in the toxigenic production by both cultures in Martin peptone broth.

The first test comparing the three cultures, Research No. 8, Pasteur No. 8 and Pasteur 2 No. 8 was made September 19, 1919. The results showed that the two Pasteur cultures gave a toxicity of 1-600, whereas the Research No. 8 gave a low M. L. D. of 1-200. The last comparative test in Martin peptone broth was made in October, 1919, but the toxicities in this test were so low that only negative results were obtained.

Witte Peptone Broth

The number of tests made using Witte peptone broth was limited, due to the scarcity of the peptone. The broth used in these tests was made according to the formula recommended by Theobald Smith[2] for obtaining a potent toxin. As in the test made with Martin peptone, the three cultures were transferred in the Witte broth three times weekly. The period of cultivation may be judged from the dates in Table 2, in which the results are given.

2. Smith, Theobald, *Journal of Experimental Medicine*, vol. IV, p. 373. 1899.

TABLE II

It will be noticed that despite the fact that Research No. 8 had been cultivated in a medium containing Witte peptone practically ever since its isolation in 1895, its toxigenic property was much less in the first three tests than that of Pasteur No. 8. The test made May 27, 1921 was a great surprise for it was the first time that Pasteur 2 No. 8 had given a higher potency than Pasteur No. 8. Whether this difference would have been demonstrable in the March 12, 1920 test it is impossible to say, but it is evident that the toxigenic property of Pasteur No. 8 in Witte broth had deteriorated. Further reference to this will be made in the following pages.

Berna Peptone Broth

It was stated above that Martin peptone broth was used during the year 1917 at the Bureau of Laboratories for the routine production of diphtheria toxin with satisfactory results. In the early months of 1918, however, the potency of the toxin was irregular, and in the late spring several successive preparations of the broth gave too low a toxin for practical use. At this time we had just begun to use the Berna peptone for the production of tetanus toxin and the idea occurred to us that this peptone might be satisfactory for obtaining a potent diphtheria toxin. Therefore a small amount of broth was made according to the method of Theobald Smith, but with the Berna peptone instead of Witte. The result of this test was very gratifying as an M. L. D. of 1-350 was obtained. No comparative tests of Research No. 8 and Pasteur No. 8 were made at this time as

TABLE 2

TOXICITIES PRODUCED IN WITTE PEPTONE BROTH BY THREE DIFFERENT CULTURES OF B. DIPHTHERIAE No. 8 AFTER CULTIVATION IN SAME BROTH. TRANSFERS HAD BEEN MADE THREE TIMES A WEEK.

Date of Test	Research No. 8* Cultivation begun December 23, 1916	Pasteur No. 8 Cultivation begun December 28, 1916	Pasteur 2 No. 8 Cultivation begun August 19, 1919
Jan. 19, 1917	Below 1-100	1-400	Not tested
Oct. 26, 1917	1-150	1-700	Not tested
Sept. 15, 1919	1-100	1-400	1-250
Mar. 12, 1920	Below 1-100	Below 1-100	Not tested
May 27, 1921	Below 1-100	Below 1-200	1-450

*This culture had been carried on in Witte broth since 1895 and transferred every other day as the routine procedure.

the writer began a year's leave of absence.* The two cultures, Pasteur No. 8 and Research No. 8 were planted in Berna peptone broth and were transferred three times weekly.

On the return of the writer from France in 1919 the comparative tests in Berna peptone broth of the two cultures, Research No. 8 and Pasteur No. 8, were made together with the second culture of No. 8 that had been obtained from the Pasteur Institute in the summer of 1919 and which is spoken of in the test as Pasteur 2 No. 8. The results are given in Table 3.

TABLE III

Four of the eight tests given in Table 3 showed decidedly the greater toxigenic property of the two Pasteur cultures over that of Research No. 8. The toxicities of the other four tests were so uniformly low that less definite comparisons were possible.

The toxin made from the Berna peptone broth was so inferior from October 1919 through to the new year, that efforts were made to see if there was not a domestic peptone on the market which would be more satisfactory for diptheria toxin production. Comparative test of Parke Davis peptone and Berna peptone broths was made and inoculated with only Pasteur No. 8. The results were encouraging, for the toxin made from Parke Davis broth had an M. L. D. of 1-700 in contrast to an M. L. D. of 1-200 obtained with Berna peptone broth. Accordingly the three cultures were cultivated in broth made with Parke Davis peptone. However, no comparative tests of the toxigenic powers were made until March, 1920. These and subsequent results are given in Table 4 in which are also included three tests of the culture "American."

TABLE IV

The marked differences in the toxigenic power of these strains were again in evidence. As far as was known, there was no explanation for the low toxicity of Pasteur 2 No. 8 in the test made January 21, 1921. This was 1-300 as against the M. L. D. of 1-1000 produced by Pasteur No. 8. In all the other comparative tests with the different peptones, the toxin made from Pasteur 2 No. 8 had corresponded very closely with the toxins made from Pasteur No. 8 with the exception of the experiment of September 15, 1919 made in Witte peptone broth (Table 2). Here Pasteur No. 8 produced an M. L. D. of 1-400 as compared with a toxicity of 1-250 made from Pasteur 2 No. 8.

It is interesting to note that the "American" culture (Table 4 November 26, 1920) gave after only seven generations in Parke Davis peptone broth a toxin with as high a potency as the Pasteur No. 8 which had been cultivated eleven months in that medium.

When it was evident that Research No. 8 produced consistently a very much lower toxin than either of the other strains, regardless of the length of cultivation in any particular broth, the thought occurred to us that it would be interesting to see what effect the different peptones may have had on the toxigenic

*During this time all of the cultures in the different media were carried on by Miss Alice G. Mann whose coöperation is greatly appreciated.

TABLE 3

TOXICITIES PRODUCED IN BERNA PEPTONE BROTH BY THREE DIFFERENT CULTURES OF B. DIPHTHERIAE No. 8 AFTER CULTIVATION IN THE SAME BROTH. TRANSFERS HAD BEEN MADE THREE TIMES A WEEK.

Date of Test	Research No. 8 Cultivation begun May 4, 1918	Pasteur No. 8 Cultivation begun May 4, 1918	Pasteur 2 No. 8 Cultivation begun August 19, 1919
Aug. 22, 1919	Below 1-100	1-100	1-100
Sept. 13, 1919	Below 1-100	1-250	1-250
Sept. 15, 1919	1-100	1-500	1-500
Sept. 19, 1919	Below 1-100	1-500	1-400
Sept. 26, 1919	Below 1-100	1-100	1-100
Oct. 4, 1919	Below 1-100	1-100	1-100
Oct. 10, 1919	Below 1-100	1-250	1-250
Oct. 18, 1919	Below 1-100	1-150	Below 1-100

TABLE 4

TOXICITIES PRODUCED IN PARKE DAVIS PEPTONE BROTH BY THREE DIFFERENT CULTURES OF B. DIPHTHERIAE NO. 8 AFTER CULTIVATION IN THE SAME BROTH. TRANSFERS HAD BEEN MADE THREE TIMES A WEEK.

Date of Test	Research No. 8 Cultivation begun Jan. 1, 1920	Pasteur No. 8 Cultivation begun Jan. 1, 1920	Pasteur 2 No. 8 Cultivation begun Jan. 1, 1920	"Americain"*
Mar. 3, 1920	1-100	1-1000	Not tested	Not tested
Mar. 12, 1920	1-100	1-800	Not tested	Not tested
Nov. 16, 1920	1-300	1-900	Not tested	Not tested
Nov. 26, 1920	1-200	1-1000	1-700	1-1000**
Jan. 21, 1921	1-200	1-1000	1-300	1-700***
Apr. 7, 1921	1-100	1-1500	1-700	1-800

*This culture was obtained from Dr. Durand, Lyons, France, and was the B. diphtheriae No. 8 which had been sent him probably from the Pasteur Institute, Paris.

**This culture had been inoculated into Parke Davis peptone broth for seven generations before seeding of Toxin flasks.

***This had been five generations in Parke Davis broth before seeding of toxin flasks.

power of Pasteur No. 8 after its cultivation in the different peptone broths. Accordingly, a preparation of Berna peptone broth was inoculated on July 23, 1920 with the Pasteur No. 8 culture which had been cultivated exclusively in Martin, Witte, Parke Davis and Berna peptone broths. The day before the test was started, seed cultures in Berna peptone broth were planted from these cultures, as fairly large amounts of the seed cultures were used to inoculate the toxin flasks and we wished to obviate carrying over any of the other peptone broths into the Berna broth. The results of this test, together with the dates of first cultivation in the different broths are given in Table 5.

TABLE V

The results of the above test show that the cultures of Pasteur No. 8 which had been cultivated exclusively in Berna, Martin and Parke Davis peptone broths gave satisfactory toxins. The culture, however, which had been transferred in Witte broth since December 28, 1916 gave a potency of below 1-100.

Another test was made with these same cultures which had been cultivated in broths made with Witte, Berna and Martin peptone, but instead of the Berna peptone broth, Witte peptone broth was used. As in the former test, the seed cultures were planted in Witte peptone broth before the inoculation in the Witte toxin broth.

TABLE VI

Here again the culture which had been in Witte broth gave the lowest toxicity. This test was repeated nine months later, on April 22, 1921. (see Table 7.)

TABLE VII

It will be seen that these results confirm the former test in the Witte peptone broth and also that in the Berna broth, in that the culture of Pasteur No. 8

TABLE 5

TOXICITIES PRODUCED IN BERNA PEPTONE BROTH BY PASTEUR NO. 8 AFTER CULTIVATION IN BROTHS MADE WITH DIFFERENT PEPTONES.

First transplant of Series (Transplanted three times weekly)	Cultivated in broth made with:	Date of Test	Toxicity
May 4, 1918	Berna peptone	July 23, 1920	1-500
Dec. 28, 1916	Witte peptone	July 23, 1920	Below 1-100
Dec. 28, 1916	Martin peptone	July 23, 1920	1-400
Jan. 1, 1920	Parke Davis peptone	July 23, 1920	1-450

TABLE 6

TOXICITIES PRODUCED IN WITTE PEPTONE BROTH BY PASTEUR NO. 8 AFTER CULTIVATION IN BROTHS MADE WITH DIFFERENT PEPTONES.

First transplant of Series (Transplanted three times weekly)	Cultivated in broth made with:	Date of Test	Toxicity
Dec. 28, 1916	Witte peptone	Dec. 9, 1920	1-150
Dec. 28, 1916	Martin peptone	Dec. 9, 1920	1-300
May 4, 1918	Berna peptone	Dec. 9, 1920	1-500

TABLE 7

TOXICITIES PRODUCED IN WITTE PEPTONE BROTH BY PASTEUR No. 8 AFTER CULTIVATION IN BROTHS MADE WITH DIFFERENT PEPTONES.

First transplant of Series	Transplanted three times weekly Cultivated in broth made with:	Date of Test	Toxicity
May 4, 1918	Berna peptone	April 22, 1921	1-800
Dec. 28, 1916	Witte peptone	April 22, 1921	Below 1-100
Dec. 28, 1916	Martin peptone	April 22, 1921	1-700
Jan. 1, 1920	Parke Davis peptone	April 22, 1921	1-700

which had been cultivated in the Witte broth gave the lowest toxicity.

Attempts will be made to confirm the results reported in this paper:

1. By sub-culturing into Witte broth the culture Pasteur No. 8 which has been propagated continuously in Parke Davis peptone broth since January 1920, and which has given regularly a very potent toxin in this medium; and by comparing these two cultures from time to time in order to see if the toxigenic powers of the culture in Witte broth has been adversely affected while the culture kept in Parke Davis peptone broth retains its ability to produce strong toxin.

2. By sub-culturing Pasteur No. 8 which has apparently lost its toxigenic power by cultivation in Witte broth, in Parke Davis peptone broth to see if this culture after varying lengths of time in Parke Davis broth may not regain its power to produce a potent toxin.

3. By further cultivation of Pasteur 2 No. 8 in Witte broth to see if this culture will lose its toxigenic power in Witte peptone broth as Research No. 8 and Pasteur No. 8 have apparently done.

SUMMARY

The culture of Research No. 8 which has been propagated exclusively in Witte broth since 1895 at the Bureau of Laboratories has apparently lost its power to produce a potent toxin in any of the broths tested.

The Pasteur culture of No. 8 which was planted in Witte broth December 28, 1916 has also apparently lost its ability to produce a potent toxin in both Witte and Berna peptone broths. The same culture kept in Berna, Martin and Parke Davis peptone broths produce strong toxins in both the Berna and Witte broths.

The cultures of Research No. 8 which have been carried on in Berna, Martin and Parke Davis peptone broths have not as yet recovered their powers to produce a potent toxin in any of the broths tested.

The toxigenic property of Pasteur 2 No. 8 culture has not as yet been affected deleteriously by the two years cultivation (1919-1921) in Witte peptone broth.

CONCLUSIONS

It would seem in view of the above findings:

1. That Witte peptone broth had an inhibitory or destructive influence upon the toxigenic powers of both the Research No. 8 and the Pasteur No. 8 cultures.

2. That the Pasteur 2 No. 8 may be similarly affected after a still longer cultivation in Witte broth.

3. That the different preparations of Witte peptone received in this country just prior to 1914 may be responsible for this deleterious effect upon the cultures. The fact that the culture Research No. 8 from the time of its isolation in 1895 to 1912-1913 had been cultivated in Witte peptone broth without any signs of the lowering of its toxigenic property as shown by the production of a potent toxin tends to confirm this conclusion.

4. That it is possible that the different preparations of any peptone may vary in their effects upon the toxigenic property of *B. diphtheriae* No. 8.

5. That the continuous cultivation of a culture of *B. diphtheriae* No. 8 in the same broth as that used for the toxin

production is apparently not necessary for obtaining a potent toxin, is shown by the "American" strain of No. 8 which, after only seven generations in Parke Davis broth gave as potent a toxin in that medium as Pasteur No. 8 which had been cultivated for eleven months in Parke Davis broth.

□

New Honors for Dr. Stephen Smith.—Dr. Stephen Smith, founder and first president of the American Public Health Association, who passed his 99th birthday on the 19th of last February, received the honorary degree of Doctor of Science at the June commencement exercises from Columbia University, of which he is the oldest living alumnus, having been graduated from the College of Physicians and Surgeons in the class of 1850. Dr. Smith marched in the academic procession, despite his advanced age.

In presenting him for the degree, President Nicholas Murray Butler paid the following tribute to the grand old man of public health:

"Stephen Smith—Graduated doctor of medicine from the College of Physicians and Surgeons with the class of 1850; foremost in planning measures for the protection of the public health and for the care of those unfortunates who are the state's dependents; winner of distinction on a hundred fields of professional endeavor and public service; walking with steadiness, with calm courage, and with powers unimpaired, down the long highway of a hundred years, the most interesting figure in American medicine and in American public service today; degree of doctor of science."

✣

Modern Health Crusade

System that trains for health
While the trained are young enough
To be trained;

System that forms health habits
Ineradicably,
And in making health a habit
Frees the mind's attention
For life's other demands—
Labor and love,
Appreciation and inspiration;

System that transforms drudgery
Into play,
Duty
Into delight;

System that stirs sluggish souls
To effort through wholesome competition,
That while creating ranks and honors,
Yet teaches the democracy
Of equal opportunity
And withal the distinction
Earned alone by effort;

System that culls the glamour
And romance of chivalry,
The team-work and devotion
Required in war,
The fervor of the fight,
And applies them
To construction rather than destruction;

Modern Health Crusade!—
Creator of healthy habitations
For healthy minds,
Builder of clean bodies,
Fit dwelling places
For clean souls.

T. J. Edmonds, Executive Secy., Iowa Tuberculosis Associaton, in Health Bulletin of the New Jersey Tuberculosis League.

CONTRIBUTORS TO THIS ISSUE

Dr. Eugene R. Kelley is one of the best known and most efficient of our state health officers. He received his academic education at Bowdoin, and his medical at Johns Hopkins University. His official career began in the state of Washington, where he was assistant commissioner and then commissioner of health. In 1915 he became director of the Division of Communicable Diseases in the Massachusetts State Department of Health, and was appointed commissioner in 1918. He is a member of the Executive Board of the American Social Hygiene Association, and during the last year was president of the Asociation of State and Provincial Health Officers.

Dr. George T. Palmer, epidemiologist of the Detroit Department of Health, is a graduate of the Massachusetts Institute of Technology, and spent several years in epidemiological work with the New Jersey State Board of Health, as staff chief of the New York State Commission of Ventilation. He made a four years' study of ventilation problems. During the war he was a captain in the Sanitary Corps. With Dr. Henry F. Vaughan, he assisted Dr. Victor C. Vaughan in the preparation of *Epidemiology and Public Health,* recently published.

Henry Harap has for three years been director of the Summer Play School which he describes in this issue. He has done graduate work in education at Teachers College, has taught in public and private schools in New York City, and is director of the Boys' Department at the Hudson Guild, a well-known New York settlement house.

Professor Fred W. Tanner, head of the Department of Bacteriology at the University of Illinois, received his Ph.D. degree from Illinois in 1916. He was bacteriologist for the Illinois State Water Survey, 1912-1915. He is the author of *Bacteriology and Mycology of Foods* and translator of Guithermond's *Yeasts.*

Miss Esther Davis, who collaborated with Professor Tanner in the laboratory work on confections, is now doing research on botulism in the Department of Bacteriology, University of Chicago.

Dr. Theodore C. Merrill, who collaborates with **Dr. H. Violle,** of the Pasteur Instiute, Paris, in the paper on "Recent Applications of the Principles of Nutrition," was formerly associated with the Medical Bureau of the Paris Headquarters of the American Red Cross, where he had special experience in child hygiene. He has recently left the staff of the Red Cross and is now engaged in private literary research and publicity work.



Red Cross Exhibit Manual (ARC 1100), April, 1922. Issued by the American Red Cross, Washington, D. C.

Although this 27-page pamphlet is intended for Red Cross chapters and contains information of a general nature, it presents much useful instruction concerning exhibit technique. Sanitarians would derive benefit from reading the sections on arranging a booth, conducting an exhibit, and how to make posters. Special features of a Red Cross exhibit, as nursing and public-health nursing, home hygiene and care of the sick, first aid, nutrition, disaster relief, and Junior Red Cross are outlined. Many illustrations from actual exhibits are included.

EDITORIAL SECTION

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NATIONAL HEALTH DAYS

The second week of next December will witness the spectacle of practically all the health organizations of the United States working together to sell a health idea to the American public. National, state and local, public and private bodies will combine to convince the average American citizen that it is wiser to be examined to forestall illness than to wait until he is sick.

The initiative is being taken by the National Health Council, and the national health organizations which it represents. State and local health officers will be invited to organize their respective territories.

Friday, the first of three "Health Days," will be devoted to child health, with special emphasis on health examinations. Saturday will be known as "Health Examination Day" and the barrage of publicity will be aimed more particularly at the adult. The third day will be "Health Sunday."

The observance of these national health days will be a great stimulus to better individual and community health. Let all get on the band wagon.

THE CITY OF THE FUTURE

Recent events have again called attention to the necessity for intelligent provision if the metropolitan district of New York City is to serve efficiently the increasing millions which inhabit it during the next century and beyond. The problems created by this concentration are growing daily in seriousness and are engaging the attention of an increasing number of thoughtful citizens. The same thing applies, of course, to all large cities whose numbers have outrun the facilities for economic and social well-being. But for various

reasons—the peculiar configuration of land and water in New York, the conflict of jurisdictions, the influx of immigration, the importance of the city as the commercial capital and distributing center of the country at large—the problems of congestion are more aggravated in New York than elsewhere in the United States. These problems are perhaps as important from the sanitarian's standpoint as from any other.

In February an important meeting was held at the New York Academy of Medicine, at which problems of housing, transit, and sanitation were discussed by Mr. Stein, General O'Ryan and Drs. Soper and Copeland. Last month the Russell Sage Foundation initiated a movement of far-reaching significance when it called a conference of several hundred prominent experts and citizens to consider a plan for New York and its environs, at the Engineering Societies Building. A committee has been created by the Foundation, consisting of Charles D. Norton, chairman, John M. Glenn, Frederic A. Delano, Dwight W. Morrow, Frank L. Polk, Robert W. DeForest, Frederick P. Keppel, secretary, and Flavel Shurtleff, assistant secretary, to make a comprehensive study of the metropolis and its needs. Herbert Hoover, Elihu Root and other distinguished public men recognized its importance by their presence and participation. On motion of Charles Dana Gibson, ably seconded by Mrs. August Belmont, a resolution calling for the support of all citizens for the plans of the committee was unanimously adopted.

The preliminary inquiries will be divided into four groups: 1. Economic and industrial. 2. Physical characteristics and needs of the area, including transportation facilities, ports, bridges, terminals, parks and public places. 3. Legal. 4. Social and living conditions. The last is obviously the category which includes most problems of public health. A salutary trend has been given to the discussions by those initiating them in the emphasis on the fact that the greatness of a municipality lies not in mere bigness, but in adequacy of its population and of its adjustment to the needs of that population. In the daily lives of millions, questions of vitality and fatigue, working conditions, infection, pure milk, water and food economically distributed, prompt reduction of sewage and other wastes, accessibility of good clinical and diagnostic service, are the elements of well-being which condition happy and abundant life. Sanitarians of all types should be prominent in the councils of any such movement for community planning. And every city of more than 500,000 population (at least) should be looking actively toward its future ability to meet the demands which will be imposed upon it.

One feature of the Sage Foundation Study of interest to industrial hygienists is the resolution of coöperation adopted by the executive committee of the Safety Institute of America, urging that the prevention of accidents in the future metropolitan area of 50,000,000 inhabitants be taken due account of in the proposed city plan, and offering its facilities for assistance in a serious permanent study. Other health and welfare agencies, both national and local, might well emulate the Safety Institute by offering service in the fields of their own special interests.

A TARIFF ON HEALTH

One need not be a Democrat to take exception to certain features of the Fordney Tariff Bill now before the Senate and occupying first place upon the calendar.

The Underwood Tariff, enacted in 1913, provides a rate of 25% ad valorem for optical instruments, microscopes, etc., and grants to educational and research institutions the privilege of importing these items free of duty. This privilege had prevailed likewise in previous tariff acts, under Republican administrations.

The Fordney bill (H. R. 7456) calls for a 35% ad valorem duty on microscopes, photographic apparatus, projection apparatus, etc., and 40% on laboratory and other scientific instruments composed of metal, and would abolish the privilege to educational institutions of free importation. No sooner had the Fordney bill got into the Senate than Senator McCumber, chairman of the Senate Finance Committee, attempted to secure the amendment of the House bill to provide a 55% duty on scientific instruments as well as the abolition of duty-free importation. It seems probable that 35% will eventually be adopted by the Senate. There the matter now stands, while all those interested are marshaling their forces and arguments to bear upon the shortsighted legislators whose vision of public welfare seems blinded by the necessity for more revenue. Of course there are two sides to the question. The domestic manufacturer needs a certain protection, but the present rate of 25% is adequate, and even some of the domestic manufacturers, recognizing the blow such a tariff would deal to scientific investigation in the United States, are opposed to the bill.

Have not sanitarians an interest in public questions such as these? The same indifference to health and larger issues is manifested in varied ways. Equally characteristic is the provision for the increase of the tariff on toothbrushes, against which Commissioner Copeland has recently forcefully protested. It is unnecessary to argue the merits of European products as against American to realize the handicap which the instrument tariff would place upon routine bacteriological and chemical work in public health, as well as more advanced research. Prices would inevitably be raised more than the percentage of the duty imposed. And however small the fraction of imported goods, the effect would be much the same.

The American Association for the Advancement of Science, composed of over 12,000 members, and including the most distinguished and representative men of science in America, at its Toronto meeting last December, passed a resolution setting forth the indispensability of scientific education and investigation in a modern civilized republic, and deploring any tendency to raise the duty on scientific apparatus or to eliminate duty-free importation by educational and scientific institutions. The politicians ignored this protest. Scientific books (not instruments), and a few drugs are left on the free list, but the most important items are to be heavily taxed.

Sanitarians, as well as all other scientists, while there is still time to make their united action felt, should write or see their own senators and congressmen, and the members and chairman of the Senate Committee on Finance.

DR. JOHN NATHANIEL McCORMACK
1847-1922

Dr. John Nathaniel McCormack, 76 years of age, an outstanding figure in American preventive medicine, died at his home in Louisville, Ky., on May 4. Dr. McCormack was born near Howard's Mill, Nelson County, Ky., November 9, 1847. At the age of 12, he left the public school to help his father on the farm, and then continued his studies at home in his effort to fit himself to study medicine. When he was 23 years old he was graduated from Miami Medical College of Cincinnati, with first honors among 600 students, for which he was granted an interneship in the Cincinnati Hospital. Instead of accepting this, however, he took up the practice of medicine in Nelson County in the neighborhood of Athertonville. During the cholera epidemic of 1872 it is said he treated every cholera case in the vicinity of Athertonville.

He was granted the degree of M. D. in 1876 by the School of Medicine of the University of Louisville. During the yellow-fever epidemic of 1878 he took charge of all cases in his neighborhood, at the direction of Dr. Luke P. Blackburn, afterward governor of the state. In 1879 the Kentucky State Board of Health was organized, and Dr. McCormack was made a member of the Board. Since that time there has not been a single death in the state from either cholera or yellow fever. In 1883 he was appointed State Health Officer, and held that position till 1912. When Dr. McCormack was elected to the presidency of the State Medical Association in 1881 he was the youngest man who had ever held this position. He wrote, and obtained the passage of the first State Medical Practice Act in 1888. It is said that since that time he has drafted most of the important medical legislation which has been passed in Kentucky. President Grover Cleveland expressed his official thanks to Dr. McCormack following the suppression of an imminent cholera epidemic in 1888.

Members of every school of medicine and all practitioners under the drugless act have had their licenses issued by Dr. McCormack. In no other state in the Union have the licenses issued to practicing physicians been signed by one individual. By this means Dr. McCormack came to know every physician practicing in the state. In 1892 Dr. McCormack relicensed every doctor in Kentucky because a number of quacks had started a false advertising campaign. As a result there are at the present time no advertising quack doctors in the state.

During his career he was the center of many fights and investigations in the Kentucky Legislature, emerging from all victorious. Dr. McCormack was the attending physician when Governor William Goebel was shot by an assassin at Frankfort at the old State Capitol in 1900, and was the only man who could testify that his successor, J. C. W. Beckham, was old enough to occupy the Governor's chair, having been present at his birth.

No one man in the United States has contributed more valiantly to the advancement of public health than this great physician, who was also a great organizer and a leader of men. His more than a half century of service is in itself an unusual accomplishment. He began his career in a community in which cholera and yellow fever were accepted as yearly visitants. He closed his career at a time when the mosquito had been outlawed and filth diseases had become negligible. He lived to see the seemingly impossible become the accepted. He was in truth a pathfinder, but always kept abreast of the times.

Dr. McCormack was the father of Dr. A. T. McCormack, present State Health Officer of Kentucky, who succeeded him upon his retirement from that responsibility in 1912. Since that time he had been director of the Bureau of Sanitation. He was at his desk when stricken by a paralytic stroke, and died within a few days. He was known by all native Kentuckians as a tireless worker, and will be greatly missed.

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LETTERS TO THE EDITOR

To the Editor:

I have noticed lately in the Journal several articles in regard to the control of diphtheria, disparaging the efficiency of quarantine or isolation.

Every health officer who has cultured many school children and contacts, is impressed by the fact that there are from three to five carriers to every clinical case, and also that a comparatively few clinical cases of diph-

theria can be traced directly to another clinical case.

Is it not, therefore, as unreasonable to expect quarantine or isolation alone to check the spread of diphtheria as it is to stop a bucket from leaking by plugging one hole when there are several other holes?

What is said about diphtheria apparently applies to scarlet fever and, with certain reservations, to measles and whooping cough, The preventive measures for these diseases must be based on the assumption that the secretions of the mouths and noses of all persons are potentially dangerous, and we must endeavor to inculcate such personal habits on the part of all children as will prevent the transmission of secretions from one mouth to another.

In every public school room in the state of Virginia we endeavor to have posted a placard on which are printed the following two rules, which the teachers are urged to enforce:

RULE I

Whenever you cough or sneeze, bow your head or put a handkerchief over your mouth and nose.

RULE II

Don't put in your mouth fingers, pencils, or anything else that does not belong there, nor use a common drinking cup.

Just as the chances of transmission are reduced by the practice of these rules so is the incidence of these diseases reduced.

ENNION G. WILLIAMS,
State Health Commissioner.

ASSOCIATION NEWS

LIST OF NEW MEMBERS

Proposed for election to the A. P. H. A. May 1 to May 31, inclusive.
Names of Sponsors are set in **Bold Face Type.**
Names of New Members are set in Light Face Type.

GEORGIA

Mr. A. W. Hedrich, New York, N. Y.
W. L. Funkhouser, M. D., 20 Ponce de Leon Ave., Atlanta, Georgia, Pediatrician.

IOWA

Mr. W. D. Hayes, Sioux City, Iowa.
M. A. Helfgott, M. D., 408-9-10 U. B. Bldg., Sioux City, Iowa, Health Officer.

MICHIGAN

Michigan Tuberculosis Association, 209 West Shiwassee, Lansing, Michigan.

MISSOURI

Thomas Parran, Jr., M. D., Jefferson City, Missouri.
C. P. Fryer, M. D., Dr. P. H., Maryville, Missouri, County Health Officer, Full Time.

PENNSYLVANIA

Mr. A. W. Hedrich, New York, N. Y.
Samuel McClintock Hamill, M. D., 1822 Spruce Street, Philadelphia, Pennsylvania.

CANADA

J. W. S. McCullough, M. D., Toronto, Canada.
J. J. Middleton, M. D., Provincial Board of Health, Spadina House, Toronto, Canada, Full-time Public Health Officer.

EMPLOYMENT BUREAU

POSITIONS WANTED

Positions wanted announcements will be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 8th of the month.

Wanted: Chemist and bacteriologist with training in sanitary engineering wishes change to another responsible position. Seventeen years' experience and now employed as chief of a large laboratory. Capable of acting as director of a municipal laboratory or superintendent of a water plant for a large city, or to combine these activities for a smaller community. State health department work or connection with a private enterprise requiring similar qualifications considered. Location anywhere east of Mississippi River, east or south section preferred. Salary commensurate with responsibilities, minimum $3,000 per annum. Only reasonably permanent position, where progressive development of activities is desired, considered. References and full history of experience furnished on application. Available on reasonably short notice. Address Chase 215, care this JOURNAL, New York.

Wanted: Position with some well-organized state division of child hygiene, any form of work in maternity or child welfare by woman physician, who has just finished

a year's special study of obstetrics and periatrics. Address T. 216, care of this JOURNAL, New York address.

Wanted: Position as director or assistant director of public health laboratory or instructional position in biochemical department of recognized university by man, age 28, with seven years' experience in teaching army laboratory, and public health laboratory work. Large initial salary not so much desired as congenial working conditions and chance for advancement. Can furnish best of references. Address V. E. 205, care of this JOURNAL, New York address.

BOOKS AND REPORTS REVIEWED

The Assessment of Physical Fitness. *By Correlation of Vital Capacity and Certain Measurements of the Body. Georges Dreyer, C.B.E., M.A., M.D., Professor of Pathology in the University of Oxford. In collaboration with George Fulford Hanson, late Lieut. U. S. A. Medical Corps, Air Service. With a Foreword by Charles H. Mayo, M.D. New York: Paul Hoeber,* 1921. *Pp.* 128. *Cloth. Price,* $3.50.

In this volume the authors make a very valuable contribution to anthropometric science and to clinical medicine. Emphasizing the need for more satisfactory methods of estimating the physical fitness of man, woman or child, Professor Dreyer aims to supply medical men and others interested in this subject with a method which in principle is not new, but is original as to the details of its application. He presents a series of formulae and tables giving information regarding the weight of the human body in its relationship to the length of the trunk, circumference of the chest and the so-called vital capacity of the lungs. He ignores the height standing, and finds in his studies no relationship between the age of the individual and the range of the indices given in the table. These data are applied in interpreting the condition of the various classes in the population and those suffering from pulmonary tuberculosis, as well as persons with functional disorders, such as industrial fatigue, fatigue of aviators, etc.

Professor Dreyer states that for all practical purposes people may be grouped in three classes: A, B and C, representing conditions of perfect, medium, and poor physical fitness. He appears to find a definite relationship between the vital capacity and the activity and environment of the individual, and gives a rough classification of physical fitness as determined in the average case by the occupation and environment. For example, in Class A, he includes Army and Navy personnel, athletes, police force, blacksmiths, and others who are required to be physically active. In Class B he includes the professional class, such as lawyers, doctors, business men, high-grade mechanics, and clerks. In Class C, those who are either sedentary in their occupation or exposed to unfavorable environmental influence, such as tailors, potters, lower-class clerks, painters, and factory children. On the basis of his researches, Professor Dreyer is prepared to state that if a person is found as much as 10 per cent below the vital capacity normal for his class, he is probably suffering from some depressing health condition. If he is 15 per cent below, it is practically certain that he is physically unfit. In order properly to apply the factor of vital capacity, there must be reference to the tables on trunk length, chest measurement, and body weight. Allowance must be made for unusually thin or unusually heavy people in determining whether the vital capacity is either subnormal or supernormal. Apparent excess may be shown in those whose weight is below normal, and conversely an apparent deficient capacity may be shown in those who are overweight.

Those who have followed Professor Dreyer's work as reported in the London *Lancet,* August 9, 1919, and June 6, 1920, have been impressed with the high value of his method, especially in clinical work. In a number of clinical centers it has been reported that this method gives astonishingly accurate results in determining the physical fitness of patients, especially those suffering from tuberculosis; that is, the present condition of vitality of the individual can be determined and the probable stage of the disease. It is obvious that this method should prove of service

in other types of trouble where deficient respiratory capacity may be a symptom.

Such tables as Professor Dreyer offers fill a long-felt want, since there has been lacking accurate and satisfactory standards for interpreting the significance of variations in the so-called vital capacity as measured by the spirometer. Even though tentative, they should form the basis of a more thorough development of this phase of research. The commonly employed method for determining lung capacity by chest expansion is practically worthless and is accorded but little attention by those experienced in life-insurance selection. The relationship between chest measurement at rest and the body height and weight has been found of more value in medical selection for life insurance. This factor has been given serious consideration in the acceptance or rejection of light weights. It is significant that life-insurance companies have been particularly successful in selecting favorable types of underweights, as the report of the Medico-Actuarial investigation shows.

It is a little surprising that no mention is made in Dreyer's book of the Flack tests which were employed in the British Aviation Service, although an examination of the records tends to establish the fact that the expiratory force test (blowing up the column of mercury) and the fatigue test (blowing up the column of mercury and holding it as long as possible) give actually more reliable testimony as to physical fitness than the spirometer ratings. These tests are very simple and may be readily applied.

One fault in the present volume which we may be permitted to point out is the paucity of research material and the meager discussion of the original statistical data upon which the elaborate tables and formulae are built. In the introduction, Professor Dreyer states that the tables are derived from a number of observations "sufficient to ensure a degree of accuracy that should prove entirely satisfactory." If far-reaching conclusions are to be drawn from these tables and the results of the methods employed, such as are suggested in the preface by Dr. Charles H. Mayo, namely, that the estimation of vital capacity in the prognosis of life's duration "parallels very closely the results of a general examination," it is important that the scientific public be fully informed with regard to the original data and its treatment. It is to be hoped that in the next edition of this work Professor Dreyer will do justice to the immense amount of labor and research that preceded the preparation of these tables and include a full discussion of the development of his method. No tables or formulae, however elaborate, can have any value beyond that of the original data upon which they are based.

The vital capacity as determined by Professor Dreyer's method may, and probably does, furnish correct information as to *present* physical fitness or vitality, but future physical fitness is an entirely different matter. It is a commonplace in life-insurance selection to find men who are unquestionably physically fit at the time of examination; the functions of their organs may not be in any way impaired, but they are regarded as very poor risks because of personal history, family history, or physical defects which expose them to greater liability to future disease, and such rulings have been justified by subsequent mortality experience.

When we examine the values of normal or supernormal vital capacity readings as evidence of physical fitness, we are, as Dr. Dublin points out, by no means on such secure ground, taking Professor Dryer's evidence as it comes. In his studies at the Brompton Hospital of 200 cases, Professor Dreyer emphasizes the fact that 17 of the hospital staff known to be normal, showed normal vital capacity; but he ignores the fact that out of 116 cases known to be pathological, 30 per cent showed vital capacity within the normal range —that is, either slightly above the norms he has fixed or less than 10 per cent below. It is clearly apparent from his studies that a subject with active, though very much improved, tuberculosis may register a normal vital capacity. Of course the clinical attitude of mind toward such a case is extremely favorable. An expectation of a permanent cure is justifiable. But we know from mortality experience on such cases that the risk is in a substandard class.

Peabody and Wentworth's studies at the Peter Bent Brigham Hospital give further evidence of the clinical value of vital capacity readings, especially in heart disease. Here again, however, we meet the limitations of this test. Lowered vital capacity readings are apparently only found in those cases where there are secondary signs such as dyspnea or a failure of compensation. For example, 25

cardiac cases without dyspnea showed 90 per cent or better vital capacity.

It is notable that Professor Dreyer emphasizes the danger of misinterpreting the readings, for instance, of overweight or underweight subjects. If we interpret his discussion correctly, the overweight subject would be regarded as having a normal vital capacity if he registers a vital capacity that is normal for a man of normal weight. Thus in the prognosis of life duration for such a subject the excess weight would be ignored. In the face of life-insurance statistics on overweight, mortality experiences over a considerable period of time would be necessary to justify the conclusion that the normal vital capacity would place this individual in the normal mortality class.

Another danger involved in giving undue weight of significance to a favorable vital capacity reading is that the physician or patient may be deterred from thoroughly searching for physical impairments potentially menacing to life and health, but of such a type that in their early stages they have no disturbing effect whatever on vital capacity or immediate physical fitness and activities. On the other hand, it is quite clear that many comparatively harmless and temporary conditions may, by depressing the circulation and the nervous state, render an individual temporarily unfit and cause a very poor vital capacity reading. In fact, Professor Dreyer states that a low vital capacity reading due to sedentary occupation may be corrected by exercise. It is therefore after all only one test, and though a test of very high value, it is not likely to prove an infallible means of predicting longevity except in types that are obviously fundamentally deficient.

The Dreyer formulae have been discussed by Dr. Louis I. Dublin in a paper read before the Association of Life Insurance Medical Directors, October 21, 1921. Dr. Dublin points out some discrepancies and errors in the formulae, especially those relating to women, which will no doubt be corrected in a future edition. It may be said that the tables are more consistent and practical for use as applied to males than to females. In some thousands of observations made at the Life Extension Institute with this method it has been found very useful in distinguishing between substandard types and light weights of sound constitution. The Flack tests have also been found useful in revealing the conditions of lowered vitality. It has been noted, however, contrary to Dreyer's contentions and those of several of his followers, that in advanced cases of organic trouble these tests must be applied with caution, as unfavorable reactions are sometimes noted.

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Fisk, Eugene Lyman. Discussion of Dr. Louis I. Dublin's Paper on "The Work of Dreyer in Relation to Life Insurance Examinations," read before the Association of Life Insurance Medical Directors, New York, Oct. 21, 1921.

EUGENE LYMAN FISK, M.D.

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The Cause and Cure of Colds. *William S. Sadler, M.D., professor of therapeutics, Post-Graduate Medical School, Chicago. Chicago: A. C. McClurg & Co.,* 1922, *5th edition. Pp.* 190. *Price,* $1.50.

The impression one derives from reading Dr. Sadler's book is that laziness and inertia are potent factors in the causation of colds. The author does not say this in so many words, but there is no escaping this conclusion. To prevent colds one must lead a life of active or positive health. This means regular exercise during the winter season, abstention from over-eating of rich and seductive foods, toning the skin by cold baths, and living in cool indoor atmospheres. It means

further active attention to incipient colds in order to abort them before they progress further. These things are what every normal person should do, what most people know they should do, and yet which all too few people actually do. Business, studies, social engagements all tend to anesthetize people as to active health. In other words, the prevention of colds is a matter of personal hygiene. It is up to the individual to do these things for himself.

The book is replete with valuable advice on hygiene and the treatment of colds in their different stages. It seems a mistake that the recent advances in this subject have been reserved for the last chapter instead of being inserted throughout the book. As it is, one has to read certain erroneous statements in the earlier chapters, only to be confronted with statements diametrically opposite in the concluding chapter. It would seem that much of the recent experience in ventilation research should have received recognition in the early chapters. It is unfortunate that a well-set-up book published in 1922 should speak of the poisonous gases in indoor atmosphere that weaken the skin and air passages. "Certain poisonous gases found in expired air are probably condensed and fall to the floor." These gases "add greatly to the poisonous and deleterious influence of the atmosphere of all living apartments which are not perfectly and ideally ventilated." Our modern conception is that respired air does not contain poisonous gases and that there is no separation or stratification of carbon dioxide. There is the startling statement that "all churches, theaters, and schools ought to be regularly fumigated with formalin from once in two weeks to once in two months." In view of the fact that fumigation following infectious disease was discarded as unnecessary by most health departments eight or ten years ago, it seems a waste of effort to fumigate as the author advises.

Chapter VIII, on influenza, credits the Pfeiffer bacillus as the cause of influenza, but this is repudiated later in Chapter X. Also influenza is described in Chapter VIII as conferring no immunity on its victims, and later, in Chapter X, we read that immunity following a world-wide epidemic is usually sufficient to protect one generation against another such outbreak.

However, if all would follow the instructions on personal hygiene advocated by Dr. Sadler, we should be a healthier nation and much freer from colds.

GEORGE T. PALMER, DR. P. H.

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Nutrition and Growth in Children. *William R. P. Emerson, A. B., M. D., professor of pediatrics, Tufts Medical School. New York: D. Appleton & Co.,* 1922. *Pp.* XXIX+341. *Illustrated. Price* $2.50.

This book by Dr. Emerson, the pioneer in nutrition work for children, is based on fourteen years' experience. Malnutrition is an old problem, and the ideas and theories held about it have frequently emanated from men working behind desks rather from those in direct contact with the children needing help. Dr. Emerson therefore feels that the old beliefs that malnutrition is caused by bad air, poverty, improperly cooked food, heredity, syphilis, tuberculosis, and self-abuse are to be discarded or neglected to a position of secondary importance. Malnutrition is a clinical entity with characteristic history, definite symptoms, and pathological signs. The malnourished child is a sick child and should be so considered. Study and treatment of these malnourished children in nutrition classes have shown, almost without exception, that the real causes of malnutrition can be found. As a result of Dr. Emerson's studies, new factors have come to the front. These are home control, food habits, health habits, physical defects, and overfatigue.

With these primary factors in view, a definite program for the control of malnutrition can be formulated. Such a program should include four forces that may safeguard the child's health: the home, the school, medical care, and the child's own interest. A well-organized nutrition class is the best agency for coördinating these forces and thus insuring rapid improvement in health and growth. A nutrition program for a community,—the nutrition clinic,—its organization and procedure, are outlined in detail. Case histories and the lessons to be learned therefrom are described. In addition there are valuable appendices containing the forms used in the keeping of nutrition records. Social workers, teachers, health officers, and physicians should find this book of invaluable assistance in understanding and controlling the problems of the undernourished child.

D. GREENE, M. D.

PUBLIC HEALTH NOTES

Abstracts by D. Greene, M. D., James A. Tobey and Homer N. Calver.

United States Supreme Court Holds Child Labor Law Unconstitutional.—The Federal Child Labor Tax law which provided a tax on all manufacturing establishments in which children under 14 years were employed or children between 14 and 16 years employed more than eight hours a day or more than 6 days a week, was held unconstitutional on May 15, 1922. The opinion of the Court was delivered by Chief Justice Taft. In it he declared that the question was whether the child labor tax law was really an excise or whether it was a regulation of the employment of child labor within the states. The Court was of the opinion that obviously the legislation was aimed at restriction and regulation of the employment of child labor and was not merely for the purpose of raising revenue. Such regulation of a state function is not within the federal jurisdiction as the Tenth Amendment of the Constitution reserves to the states all powers not especially delegated to the Federal Government nor prohibited by the Constitution to the states. Under the clause in the Constitution, the states derive their police power and their supreme jurisdiction over all matters within the borders of their own states. The Court stated that if such legislation were allowed, it would break down all constitutional limitations of the powers of Congress and completely wipe out the sovereignty of the states. The tax is called a penalty to coerce the people of a state to act as Congress wishes them to act in a matter which is strictly state business. The Court seems to recognize the evils of child labor by stating "We can not avoid our duty, even though it require us to refuse to give effect to legislation designed to promote the highest good. The good sought in unconstitutional legislation is an insidious feature because it leads citizens and legislators of good purpose to promote it without thought of the serious breach it will make in the ark of our covenant or the harm which will come from breaking down recognized standards." It will be remembered that the federal law prohibiting transportation in interstate commerce of goods made at a factory where child labor was employed was held unconstitutional several years ago. (Hammer v. Dagenhart, 247 U. S. 251.) It would seem, therefore, that the only way in which federal control of child labor can be obtained is by an amendment to the federal Constitution. (J. A. T.)

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Politics and the Health Officer.—"An intelligent and enterprising young officer, a graduate of one of the foremost medical schools in the country, who devoted full time and expert knowledge to the protection of the health of his community, has recently been forced out of office after a political turnover in an Eastern city. His place has been taken by a physician with antiquated notions and scant acquaintance with modern scientific methods of controlling disease, whose only qualification for the position seems to be the fact that he occupied it before when the same party was in power. He spends an hour or so a day at the health department and draws the same salary, $4,500 a year, which his predecessor earned.

"New York can take no pharisaic attitude toward other states in this matter. As a result of upstate elections in the fall of 1921, six city health officers, most of them experienced and competent men, have been displaced, in some cases to the definite detriment of community health interests. Yet, ... New York has a statute adopted last year which makes it possible for any second or third class city to go a long way in eliminating politics from its health department. Chapter 249 of the laws of 1921 permits any such city to abolish the old-fashioned, cumbersome, and too often irresponsible board of health, and to substitute a modern, single-headed health department. The fact that so many other states have imitated New York State's public-health law and its state health administration under a single commissioner goes to prove the merits of this plan in theory and in practice. By the voluntary adoption of the 1921 statute the cities of the State should likewise set themselves in the vanguard of progress in local health administration.

"Why, indeed, should any American city take chances with its public health? It is perhaps too much to expect that all technical public services will be withdrawn from politics in the near future, but if there is any department of public affairs in which an immediate effort

should be made to achieve this result it is in the field of public-health administration. The most vital interests of the life and health of every citizen demand that the city health officer, at least, should know his job and should be protected in office as long as he is honest and competent. A good health officer should be kept for life or as long as he is physically and mentally capable of discharging his duties. Removal of a health officer should be possible only on charges for proven misconduct or inefficiency. The individual citizen does not insist that his own physician qualify as a Republican or Democrat before he is permitted to prescribe for the family; no more should a community consider politics in selecting its health officer."—Editorial, *Health News,* New York State Department of Health, April, 1922.

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The Modern Pay Clinic and the Doctor.—During the past 250 years the constant push of industrialism and commercialism has changed the face of the earth, has driven the tiller of the soil from his fields into slums, which did not exist before, and then bound him down as an appendage to giants of steel and steam. It has affected men, women and children, and contributed to cause new diseases and suffering; in fact, a new health problem. This, however, has lent itself to solution by the genius of individual men, and with the passing of time many of these technical problems have been solved. But the question of readjustment of relations between the medical practitioner and the economically disfranchised mass of toilers has not yet been solved; in fact, few practitioners are intelligently conscious of the existence of this problem.

The pay clinic is a feeble attempt at the solution of one phase of this pressing problem, the phase of inadequate medical attention available to the average worker. This problem is essentially an economic one. The reason they do not receive proper medical attention is because self-respecting men and women are caught between the two difficulties of self-respect and economic limitation. They will not go to the dispensaries, and they cannot afford to consult a private practitioner. In the same way the medical practitioner is no less liable to the economic forces of current society than are the rest of the cogs of the industrial machine-made society. If he would live, the cash payment must be the basis of his practice. And so, as a solution comes the pay clinic. As a palliative one may grant its effectiveness; as a cure one must doubt.

Medicine is an art as much as it is a science. No case is identical with any other case, nor will any solution in one circumstance precisely fit another. Even causes of the same condition will vary. Mass service in medicine makes use of the science but never the art of medicine. There is no way in which medicine may be practiced satisfactorily in which the personal relation of the physician to the patient is not thorough and complete. One of the commonest complaints against the pay clinic is that the patient is denied the opportunity of talking over his difficulties, and the majority of these patients suffer more from this lack than from the physical discomforts themselves. Thanks to the various schools of psychotherapy, Freudian or otherwise, the average physician is now impressed with the importance of taking the psychic status of the patient into consideration when according him treatment. Life has become too difficult for the ordinary individual, and the physician with his knowledge of the structure and function of the human body is called upon to help in making the necessary adjustment and to point out the rational way, as did the priest in former times.

The solution of this problem must come through some way that will provide for the economic interests of the physician, keep the intimate relations between patient and doctor, and put at the command of the physician all the apparatus and equipment available in a hospital, which no one physician should have to own. The pay clinic may in time take care of all this.—Iago Galdston, M. D., *The Nation's Health,* May 15, 1922, p. 265.

✣

Privies and the Spread of Intestinal Infections.—Kligler reports the results of an investigation made for the Rockefeller Institute with the purpose of studying the various types of privies, particularly with regard to the danger of soil pollution and its relation to the spread of intestinal infections. The main conclusion arrived at on the basis of the experimental and field observations is that in moderately compact clay, sand clay, or sandy soil, free from cracks, the possibility of subsoil pollution of the ground water is negligible, provided the ground water level is more than 10 feet below the polluted area.

The investigation shows that the pit and septic privies, if properly constructed, are practically free from danger as far as the spread of intestinal infections of bacterial origin is concerned. Whether that holds true with regard to hookworm infection still remains to be determined. These privies might under certain conditions become a menace from a sanitary standpoint. If, for example, it was found that the soil is favorable to the survival and passage of the bacteria to the underground water, then they might be considered dangerous. However, under the various conditions represented in this investigation, there was neither prolonged viability nor ready passage through soil.

From the practical sanitary standpoint there are certain requirements which the sanitary privy should fulfill. The first obvious requisite is concentration of the excreta at a single point below the surface of the soil. The next essential is to prevent the mechanical distribution of the fecal matter, either by overflow wash or by flies. The excreta should therefore be deposited a sufficient depth below the surface to prevent overflow during heavy rains and should furthermore be properly covered to eliminate fly-breeding. Furthermore, since it has been shown that pollution may at times, under extreme conditions, penetrate a depth of 10 feet, it is important that a vertical distance of at least 10 to 15 feet be allowed between the fecal deposit and the ground-water level. Finally it is desirable that the privy require little attention and be relatively cheap.

The above generalizations should form the basis for the practical construction of either pits or septic privies. The pit privy can be used safely in any soil similar in character to those studied in the course of this investigation, provided the ground-water level does not rise higher than 10 to 15 feet from the surface. In such soils a pit about 3 feet deep would be within the limits of safety if properly protected against flies. In limestone regions and in soil where the water-table is near the surface, the pit privy should not be considered safe. In such localities the Kentucky sanitary privy or one of similar design might be recommended.

In general it should be emphasized that any form of subsoil disposal should be designed with a knowledge of the character of the soil and particularly with due regard to the ground-water level. The vertical distance between the source of pollution and the ground water is the significant factor. The horizontal distance between the source of pollution and the well is of relatively slight importance except when there are underground channels or cracks in the soil.—Monograph No. 15 Rockefeller Institute for Medical Research, *Investigation On Soil Pollution and the Relation of the Various Types of Privies to the Spread of Intestinal Infections,* I. J. Kligler.

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(D. G.)

The Cleansing of Cups and Glasses.—In a paper submitted to the Société Médicine Publique (Paris), Dr. E. Briau reports that as a result of his investigations he has become convinced that the summary fashion in which glasses are rinsed in cold water is often of such character as to increase rather than diminish the chances of contagion. He proposes, therefore, that restaurants and other dispensers of beverages be required to cleanse their glassware in two separate waters, the first to consist, in place of tepid water, of a strong solution of hydrochloric acid, which without injuring the glassware would destroy rapidly all the organic microörganisms by which it might be contaminated. (The persons in charge of this should, of course, wear rubber gloves.) After being taken from the acid solution, the glassware should be thoroughly rinsed in running water to remove all traces of the acid.—*Medical Officer,* May 13, 1922. (D. G.)

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Efficiency in the Baking Industry.—Dr. Wm. C. Witte has been assigned by the U. S. Public Health Service to coöperate with the American Bakers Association in a study of its sanitation problems and possibilities, and work out every problem he can find within the industry. Dr. Witte is well fitted for this task, having kept two great army zones free from contagion and every condition making for bad sanitation during the world war. The bakers have determined to self-educate their industry, and they intend to have expert advice. Referring to his future work with the Association and the Inspection Service, Dr. Witte in a short article in *Baking Technology,* says that the world war awakened the people to the importance of the health of the worker as a factor with regard to the volume of production. It is the intention of the Inspection Service to interpret the various sections of the Sanitary Code, adopted by the American Bakers Association, in application to individual bakeries and to assist employers

and employees to meet them. It is also the intention to make a study of the health hazards of the baking industry, as to whether the baker is particularly susceptible to respiratory diseases, has a shorter term of life due to his work, etc., or whether this was only the case in the old days of poorly ventilated workshops, long hours and low labor standards.

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The Toxicity of Putrid Food.—Dr. W. G. Savage, whose experience with the food problem and with outbreaks of food poisoning has been wide, shows in this article that there is an almost entire absence of any evidence that tainted and incipiently decomposed food is harmful. The prevailing view as to its harmfulness may be perfectly justified but it does not seem to be supported by any reliable evidence in its favor. The firm support given to the harmfulness of tainted food is largely a matter of sentiment, supported by erroneous deductions from data which are vitiated by three prevailing fallacies. One is that the chemical studies, upon which the theory of the harmfulness of food in a condition of putrefaction has been built up, rest upon a study of the end products of putrefaction and not upon an investigation of the toxicity of such foods in stages of putrefaction when there is a possibility of their being consumed. The second fallacy is that nearly the whole of the evidence as to the alleged toxicity of the products of protein decomposition is based upon experiments upon animals in which the method of introduction is by injection and not by feeding. The remaining fallacy is that the alleged harmfulness of meat or other foodstuffs in a condition of incipient putrefaction has usually been confused with poisoning by food infected with specifically harmful bacteria. This fallacy is kept up by the retention of the expression "ptomaine poisoning" for outbreaks of this character. The stimulus needed for effective administrative action at the present time is a realization that food poisoning outbreaks and attacks of illness generally, from unsound food, are due to infection with specific bacteria in nearly all, if not in all cases. —W. G. Savage, *Hospital and Health Review,* October, 1921, 11. (D. G.)

✣

Treatment of Anthrax.—The author feels that the measures of local therapy of anthrax in common use should be abandoned, owing to the disadvantages or even dangers they possess. The most important of these disadvantages is the lack of any specific effect upon the course of the malady, and when a septicemia has begun. The value both curative and prophylactic in animals and therapeutic in man, of anti-anthrax serum must now be regarded as established by statistics. Its apparently specific effect upon the course of this disease must be recognized. The mortality can no doubt be reduced to a minimum by early recognition and prompt serum treatment. The serum should be administered both by local injection, around the lesion, and generally into the circulation by the subcutaneous, intramuscular, and intravenous routes. An outline is given of the dosage and frequency of injection.—J. C. Regan, *Monthly Bulletin, N. Y. City Health Department,* January, 1922. (D. G.)

✣

Use of Typhoid Vaccine by Mouth.—An interesting investigation in which the prophylaxis of typhoid fever was tried by using typhoid vaccine by mouth is reported by Vaillant. During an epidemic of typhoid fever Dr. Vaillant substituted for the ordinary hypodermic injection the administration of a vaccine combined with bile and given by the mouth. The bile as has been shown facilitates the absorption of bacterial products from the intestine. Careful inquiry indicated that very slight inconvenience resulted from this method of taking the bacteria; of 396 vaccinated, 15 had slight colic, 5 slight diarrhea on the first day, 24 headache, and 1 nausea. The vaccine and bile are taken in pill form on rising in the morning, for 3 successive days. The results in 2,000 cases with controls are as follows:

(1) 1,236 vaccinated by mouth—Cases of typhoid 5; morbidity rate .17 per cent

(2) 173 vaccinated hypodermically—Cases 4; morbidity rate 2.3 per cent

(3) 600 unvaccinated—Cases 21, morbidity rate 7.7 per cent.

—L. Vaillant, *Annales de l'Institut Pasteur,* February, 1922, 148. (D. G.)

✣

Chickens and the Spread of Hookworm.—The results of various experiments conducted in Trinidad show that in hookworm control the chicken is both beneficial and harmful. Hookworm eggs remain viable while passing through the alimentary canal of chickens and are able to hatch. Hookworm eggs swallowed by chickens produce infective hookworm larvae when the fowl feces are mixed with

animal charcoal or with soil. The results of a series of experimental feedings indicate that the great majority of hookworm eggs ingested by chickens fail to produce infective hookworm larvae. This failure is attributed in part to breaking of eggs in the gizzard, injury from urine in the feces, and to malnutrition of the larvae in the excrement. Dangerous infective spots may be established around drinking receptacles by chickens that have swallowed hookworm eggs day after day. Hookworm eggs deposited out of doors under conditions unfavorable for development can be carried by chickens to favorable environments. Human stools voided in unfrequented places can be carried by chickens to the door yard which is traversed by barefooted persons. Newly hatched hookworm larvae can pass through the digestive tracts of chickens apparently uninjured. A comparison of the reduction of mature hookworm larvae by fowls with the establishment of infective spots by them convinces the author that chickens are more beneficial than harmful in the control of hookworm disease in Trinidad.—J. E. Ackert, *American Journal of Hygiene,* January, 1922. (D. G.)

✣

The Endemic Goiter Problem.—The prophylactic use of iodin has completely eradicated goiter in certain domestic animals in goiter districts where formerly the incidence in these animals was high. That a like prophylactic measure is equally applicable in man has been shown by Marine and Kimball in their survey of goiter and the use of iodin in the Akron schools. As a public-health measure, the prophylactic use of iodin has gained great momentum during the last two years in the cities bordering on the Great Lakes. When it is once generally instituted, goiter belts will cease to exist and a cretin will become a medical curiosity. Adenomata would be eradicated in the second generation if gravid mothers were given iodin; carcinoma of the thyroid would be almost wiped out and the incidence of exopthalmic goiter would markedly decrease. One may readily picture the time when national legislation will demand that all salt for family use which comes into a goiter district must contain iodin.—H. G. Sloan, *Southern Medical Journal,* March, 1922, 202. (D. G.)

✣

League of Red Cross Outlines Program.—The council of the League of Red Cross Societies has just concluded its second biannual meeting. A set of resolutions adopted on the last day of the meeting states that hereafter the activities of the League will be concentrated upon the development of popular health instruction, public-health nursing and the Junior Red Cross. These three subjects were chosen as a result of the unanimous opinion of the delegates as to what constitute the vital problems common to all countries. Thirty-four countries were represented at this meeting. Judge John Barton Payne was elected by the Board of Governors as chairman of the Board to succeed the late H. P. Davison. For the next two years the budget of the League will be assured by the American Red Cross, other Red Cross societies making, however, many substantial contributions. The next meeting of the League will be a regional conference at Bangkok, Siam, in November. This will be particularly for the benefit of the societies of the Orient. It was decided also by the council to move the headquarters of the League from Geneva to Paris. —*Red Cross Courier,* April 29, 1922.

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Rockefeller Foundation Activities.—During the year 1921, the Rockefeller Foundation and its agencies, the International Health Board, the China Medical Board, and the Division of Medical Education, have carried on the following activities, according to the annual report issued by President George M. Vincent:

Continued a quarter-million annual appropriation to the School of Hygiene and Public Health of Johns Hopkins University;

Pledged two millions to Harvard for a school of health;

Contributed to public-health training in Czechoslovakia, Brazil, and the United States;

Aided the Pasteur Institute of Paris to recruit and train personnel;

Promoted the cause of nurse training in America and Europe;

Underwrote an experimental pay clinic in the Cornell Medical School;

Formally opened a complete modern medical school and hospital in Peking;

Assisted twenty-five other medical centers in China;

Promised a million dollars for the medical school of Columbia University;

Contracted to appropriate three and one-half millions for the rebuilding and reorgan-

ization of the medical school and hospital of the Free University of Brussels;

Made surveys of medical schools in Japan, China, the Philippines, Indo-China, Straits Settlements, Siam, India, Syria, and Turkey;

Supplied American and British medical journals to 112 medical libraries on the continent;

Supplemented the laboratory equipment and supplies of five medical schools in Central Europe;

Defrayed the expenses of commissions from Great Britain, Belgium, Serbia, and Brazil;

Provided 157 fellowships in hygiene, medicine, physics, and chemistry, to representatives of eighteen countries;

Continued a campaign against yellow fever in Mexico, Central and South America;

Prosecuted demonstrations in the control of malaria in ten states;

Coöperated in hookworm work in nineteen governmental areas;

Participated in rural health demonstrations in seventy-seven American counties and in Brazil;

Neared the goal of transferring to French agencies an antituberculosis organization in France;

Provided experts in medical education and public health for counsel and surveys in many parts of the world, and rendered sundry minor services to governments and voluntary societies.

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Health Conference in China.—A National Christian Conference was held in Shanghai May 2-11. There were 1,200 official delegates, half foreign and half Chinese. They came from every province and from every Protestant Christian organization in China. The Council on Health Education, at the request of those in charge of the conference, prepared a booklet entitled "Health Pays Dividends," which states the present health conditions in China, which are a retarding influence on every phase of progress; and also that the present conditions constitute a challenge to the Christian forces in that country, for they have it within their means to help bring about a change for the better. In this booklet, Dr. W. W. Peter expresses the opinion that unless the Christian church goes further than the practices of curative medicine upon individual sick, and undertakes the larger public-health problems which extend beyond the individual into the social group, and makes of itself something socially as well as individually practical. it will be cast aside by the world of perplexed but forward-thinking men who are groping for the light whereby men may live together. The Council on Health is doing remarkable work and the Christian church needs such an agency to unite the efforts of those particularly interested in questions relating to health conservation and disease prevention, and to serve in whatever ways it can to interpret modern health ideals in practical terms suitable to conditions in China.

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The Rebirth of France.—At the time the Great War was declared France had begun to show alarming symptoms of depopulation. Her decreasing birth-rate was supposedly due to a lax moral sense. The war bled the country to an extent that might have been expected to provoke an even greater depression of moral standards. But now, from all sides, throughout the land comes an explosion of life which expresses the general determination to resuscitate. Paris is taken for an example, as large cities are usually the clearest and most vital proof of what a nation is.

The following table indicates the births and deaths in Paris in 1913 as compared with those of 1920:

Year	Births	Deaths	Percentage Births of Deaths
1913	48,609	44,385	109.4 per cent
1920	55,770	43,057	129.5 per cent

The number of deaths among children placed out of Paris with wet or dry nurses in 1913 was 15,414, or about 31.6 per cent of all births, and only 10,128 in 1920, or about 18.1 per cent of all births. This is particularly interesting when it is remembered that the death-rate is always high when children are placed away from their mothers. The number of breast-fed babies has increased very greatly too.

In 1897 Mademoiselle Chaptal began visiting mothers and children in the 14th Arrondissment in Paris. The great need of young and inexperienced mothers and their babies in this district became more and more evident to her as she studied the situation, and after several years of volunteer visiting work, she resolved to devote her life to ministering to this neighborhood, with the result that a dispensary was started in 1901 out of her own funds. A large mansion surrounded by extensive grounds was acquired and here Mlle. Chaptal transferred her residence and became a vertiable mother to the whole neighbor-

hood. There is now a training school for nurses with an excellent course of nursing for a selected group of young women. A day nursery for children of working women is in operation, and it has become a modern health center for the entire quarter. Four years ago with the coöperation of the mayor of arrondissment, Professor Ferdinand Brunot, the Children's Bureau of the American Red Cross interested itself in starting a plan for reaching all the children of this section, and founded the "Patronage Franco-American," at which time it became apparent that the services of Mlle. Chaptal had for years included all the features of a modern child-health program as we understand it in America.—Dr. J. H. Mason Knox, Jr., Field Director of the American Red Cross, *Mother and Child,* Vol. 3, No. 5, p. 214-216.

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Division of Welfare of the United States Post Office Department.—Five days after the Honorable Will Hays became Postmaster General, March 4, 1921, he announced that he planned to "humanize" the postal service, that the working conditions in many places were unsatisfactory, and that great improvement must be made in that direction. He stated that there was no doubt about the quality of the 326,000 employees—they had the ability and the will to do their job well—but, as he put it, "some place along the line the heart had been lost out of the works."

In order to develop a welfare department a conference was held in Washington April 21, 1921. In addition to representatives from all the different sections of the postal service, Dr. D. F. Garland of the National Cash Register Co. and Dr. Lee K. Frankel of the Metropolitan Life Insurance Co., were invited. In June, 1921, in response to Mr. Hays' request, postmasters throughout the country submitted recommendations concerning the welfare division. On June 27, Dr. Frankel was appointed welfare director, and actual operation of the division began with his arrival in Washington on that day. Dr. Frankel organized the National Welfare Council, composed of representatives of the various national associations of postal workers, and a constitution was adopted. In order to ascertain the conditons in post offices throughout the country Dr. Frankel spent six weeks between August 1 and September 15, 1921, in a tour of inspection. During that time he visited more than 100 post offices, including substations, made a number of addresses, and held conferences with postal officials and employees. Especially in the older buildings the conditions were found deplorable. Action is being taken by the Welfare Department to correct conditions as quickly as possible.

The U. S. Public Health Service, by an arrangement with the Secretary of the Treasury, has rendered much assistance to the Division of Welfare. The vision of 500 employees in New York Post Office was tested, a dispensary was established, which will be extended to other cities as funds of the Public Health Service permit, the service being entirely optional with the employees. There are 65 medical and surgical chests ready at Perryville, Md., taken over from the Army, to be sent to 65 of the largest offices that have reported the lack of first aid equipment. Chests will be supplied to other offices, these being too large for the smaller post offices. A sanitary survey was made of the New York City post office by the U. S. Public Health Service. Physical examinations are now being made of postal employees in the Chicago and New York City offices.

On April 7, 1922, Mr. Henry S. Dennison succeeded Dr. Frankel as Welfare Director, both serving without pay. Since Dr. Hubert Work succeeded Mr. Hays, he has been in charge of this work. Expenses of the welfare division have been paid out of general funds, as no specific appropriation has been made.—National Health Council Report on the Division of Welfare of the U. S. Post Office Department, June 1, 1922.

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Health Councils Hold Joint Meeting.—The National Child Health Council and the National Health Council both held meetings in the Executive Room of the American Red Cross, Washington, D. C., on May 3. At the meeting of the National Child Health Council, which came first, there were interesting reports of progress on the Child Health Demonstration in Mansfield and Richmond County, Ohio, by Dr. Walter H. Brown, director, formerly of the Health Service of the American Red Cross, and reports on several other pieces of work carried on by the Council, such as the preparation of a Height-Weight Table, a report on an outline of a school-health program, and a statement of the methods for a campaign against malnutrition. The principal business before the National Health Council

was a discussion of the investigation, study, and promotion of state health councils. Already studies have been made in Ohio and Maine, and further surveys will be carried on in other states. In this work, the National Health Council will have the coöperation of the National Child Health Council. Other routine matters, such as reports of committees and of the executive officer, plans for a Health Day in the fall, and a report of the National Exhibit Committee, were considered.

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National Child Health Council Issues Report.—The first annual report of the National Child Health Council was issued the early part of May. This consisted of a fourteen-page pamphlet entitled "For the Child, A Venture in Coördination in the Interests of Children." It outlines the formation of the Council, its functions as a clearing house for child health, describes the Child Health Demonstration in Mansfield, Ohio, and concludes with a statement of future plans. The National Child Health Council is one of the members of the National Health Council.

✣

New England Health Institute.—The New England Health Institute was one of the regional institutes suggested by the United States Public Health Service. The State Boards of Health of New England and the Medical Schools of Yale and Harvard Universities joined with the Public Health Service in presenting to the people of New England a school of public health covering the leading activities of the field health worker.

The total registration was 850 and of this number 777 reported at the desk during the Institute. "Three lectures were scheduled for each hour from Monday at 3 p. m. to Friday at 5 p. m. The faculty with but few exceptions contributed their services. Owing to the intensive program, few clinics were given and these were in Hartford institutions. No elaborate field trips were planned, although the opportunity to visit engineering works, industrial and other activities in and about Hartford was accepted by quite a number.

The Institute seemed to be enthusiastically received, and interest grew as the meeting progressed. The starting and closing of the lectures on the scheduled hour and minute was well received and elicited favorable comment. An opportunity was given all registrants to indicate preferred courses, but no effort was made to require strict adherence to the same so long as the required number of lectures (18) were taken by those who desired certificates. The result of this procedure has not yet been analyzed, but with the large and representative faculty, it seems likely that this method resulted in greater satisfaction and more enthusiastic attendance.

At a meeting of the Advisory Board held during the Institute, the following recommendations were adopted:

1. That the Institute be held annually.
2. That a registration fee not exceeding $3.00 be charged.
3. That the next meeting be held in Boston or a city in the vicinity, probably Worcester.
4. That Dr. Eugene R. Kelley be Director for the 1923 meeting.

✣

National Exposition of Chemical Industries.—The Eighth National Exposition of Chemical Industries will be held this year in the Grand Central Palace, New York City, during the week September 11-16 inclusive. It will follow immediately upon the fall meeting of the American Chemical Society. The office of the managers, Charles F. Roth and Fred W. Payne, is in the Grand Central Palace, New York City, and inquiries should be directed to them there.

✣

American Association for the Promotion of Public Baths and Hygiene.—The Association held its eleventh annual meeting in Buffalo, N. Y., May 11 and 12, with convention headquarters in Hotel Statler. The opening address was made by Francis E. Fronczack, M. D., Health Commisioner of Buffalo. Many papers were read on public baths and laundries, athletic agencies, sanitary pools, etc. The meeting closed with a round table luncheon and a sightseeing excursion.

✣

Wellesley Research Fellowship.—A research fellowship of one thousand dollars for the study of orthopedics in relation to hygiene and physical education is offered at Wellesley College. The work on the problem chosen in consultation with the department must be done in residence, except for study and observation of clinical practice. It will begin in September following the acceptance of the applicant and will continue through one calendar year. Those wishing to

apply for this fellowship should send their evidence of preparation and qualifications to the Director, Graduate Department of Hygiene and Physical Education, Wellesley College, Wellesley, Mass.

✣

Drs. Frankel and Rosenau to Go on Relief Mission.—Having succeeded in raising over $17,000,000 additional to relieve their stricken people in Central and Eastern Europe, as well as Russia, the American Jewish Relief Committee, of which Louis Marshall is chairman, has appointed a commission of leading Jewish business men, scientists, bankers, and social workers to go to Europe to study at first hand how far the $50,000,000 hitherto raised for European relief has relieved the situation, and to determine what the plans and methods shall be for the immediate future. The decision to send the commission was reached at the Detroit conference in April, attended by Jewish leaders from every state in the Union.

The commission, which sails on the Cunard liner, Berengaria, June 20, is headed by Dr. Lee K. Frankel, former president of the American Public Health Association, and third vice-president of the Metropolitan Life Insurance Company, which has extended him a leave of absence for this trip. Associated with Dr. Frankel on the commission are David A. Brown, prominent Detroit manufacturer, who was chairman of the National Campaign for Jewish Relief; Dr. Milton J. Rosenau, professor of preventive medicine at Harvard; David M. Bressler, New York insurance man, and chairman of the New York City Jewish Relief Campaign, and Morris Wolf, a leading Philadelphia attorney. The commission hopes to have the advice of Herbert H. Lehman, New York banker, who is now in Europe arranging the reconstruction work of the Joint Distribution Committee, and also of James N. Rosenberg, New York lawyer, vice-chairman of the Joint Distribution Committee.

The reports from the Committee's field workers in Europe show distinct improvements in many sections of Europe, and at the same time tell of extreme suffering in the Ukraine and Soviet Russia, where at least four million Jews are confronted by actual starvation and epidemics. Five million dollars has been alloted by the Joint Distribution Committee, of which Felix M. Warburg, of Kuhn, Loeb & Company, is chairman, for relief work in Russia. The Committee works in close coöperation with the American Relief Administration, of which Herbert Hoover is the head.

The commission will return to the United States about September 1.

✣

Compressed-Air Blowers as an Aid to Metal-Mine Ventilation. — Compressed-air blowers are an aid to metal-mine ventilation in that they do increase the cooling power of the mine air in the immediate vicinity of the blower, and will dilute the noxious gas content of the mine air to a certain extent. The capacity of one of these blowers, approximately 80 cubic feet per minute, while as much as that of a rock drilling machine, is not sufficient to remove the fumes caused by blasting, nor is the cooling effect of the air felt at distances of more than 50 feet from the blower, and then only when directly in the line of the compressed-air stream.

On the other hand, a small, self-contained, electric fan, forcing from 1,000 to 2,000 cubic feet of free air per minute either through a canvas or galvanized pipe, gives instant relief from heat and humidity, and, if a galvanized pipe is used with a reversible fan, the fumes and powder smoke can be instantly removed. The cost of compressing air averages about three cents per thousand cubic feet, and from figures obtained in other districts it was found that it only costs three-hundredths of a cent per thousand cubic feet to supply fresh air by the use of small unit fans and galvanized iron pipe, or less than one-hundredth as much. In one mine, when the change from compressed-air blowers to fan ventilation was established, it was noted that the total cost of ventilating plus the cost of supplying compressed air for the drills was less than the previous cost of supplying compressed air alone and, furthermore, adequate working conditions underground increased the daily production per man almost 50 per cent.

Taken as a whole, the use of compressed-air blowers as an aid to the ventilation of blind drifts, in poorly ventilated mines, is not only futile, but also decidedly more cost-

ly than adequate fan ventilation.—*Reports of Investigations,* U. S. Bureau of Mines.

✣

A Zoning Bibliography.—The Department of Commerce, in response to the needs of over 60 cities in which zoning is in effect, and of over 110 cities which have zoning ordinances in preparation, has just issued a Selected Bibliography of Zoning. This contains critical references to the most important articles on the subject which have appeared in periodicals and books. A special section is devoted to the social and hygienic advantages of zoning, listing several references on its relation to health and living conditions, including W. A. Evans, "Importance of Zoning from the Health Standpoint" (in Report of Proceedings of Chicago Citizens' Zone Plan Conference, 1919). The bibliography may be obtained by application to the Division of Building and Housing, Department of Commerce, Washington, D. C.

✣

The Jewish Agricultural Aid Society.—After a number of years of study, application and service to Jewish farmers and prospective farmers, this Society states in its annual report that it has made over 6,000 loans, amounting to more than $3,000,000, placed numerous laborers, improved the home life of women and children on the farms, and advanced the sanitation in rural districts to a remarkable degree. Its aims are strictly educational. To make the extension of sanitary work possible, a school of sanitation for extension specialists was held during January and February of 1921; lectures were delivered on all branches of sanitation and public health to equip their extension service to carry this work into new fields. In several localities lectures with motion pictures were given to impress upon the summer vacationist the necessity for rural sanitation. Four years of labor in this field in several counties of New York State have called forth many letters of appreciation and endorsement of the work accomplished.

✣

Summer School of Occupational Therapy.—The Byrdcliffe Summer School of Occupational Therapy, Woodstock, N. Y., will be continued this year by master craftsmen under the direction of Miss Bertha Thompson, who has been a director of occupational therapy in army and public-health service hospitals for the past three years. The courses have been planned specially for graduate occupational aides who want further technical training and those who have already had some experience. Instruction will be given as follows: Leather work, weaving, basketry, Miss Thompson. Woodcarving, modeling, pottery, Miss Zulma R. Steele. Metalwork, jewelry, woodwork, toy making, Edward Thatcher. Materials will be supplied to students at cost, all equipment furnished, and accommodations can be obtained at the Inn at Byrdcliffe very reasonably. Application blanks for admission can be obtained from Miss Bertha Thompson, Woodstock, Ulster County, N. Y.

✣

Accidents Among Children.—The Metropolitan Life Insurance Company reports that during 1921 there was a high rate of injuries sustained by children in mines and factories. In spite of safety devices and safety campaigns, one death out of every three of boys thirteen to seventeen years of age who had been gainfully employed, was due to accidents. Of the 199 deaths in this group 43 were from industrial accidents resulting directly from the work in which the boys were engaged. Among those not gainfully employed, one death out of every four was due to accident. The records of the Metropolitan Company are limited to fatal accidents only, but other sources of information bring out clearly the fact that there are a large number of accidents causing permanent and temporary disability of young workers. Some of these sources are cited in the *American Child,* Nov., 1921.

The number of children engaged in industry in the United States is steadily growing. "If," states the Metropolitan Life Insurance Company, "a further analysis of mortality and accident disability of adolescents bears out the findings of this small study that the chief difference between working children and those not gainfully employed lies in their susceptibility to accidents, it certainly is necessary to intensify our safety campaigns in the factories and mills, safeguard our dangerous machines and entirely prohibit minors from engaging in those pursuits, where industrial accident

hazard is greatest." — Statistical Bulletin, Metropolitan Life Insurance Co., March, 1922. (*J. A. T.*)

✣

The Book of St. Ultan.—A new venture in hospital financing. This book is a collection of pictures and poems by Irish artists and writers, published by the Candle Press, Martin Lester, Ltd., Dublin, Ireland. It was issued by a committee of artists and writers of Dublin who gave their services without charge and the publication is sold for the benefit of the New Dublin Hospital for Babies. This hospital is conducted by women physicians; an active dispensary is maintained where instruction in child hygiene is emphasized, and there are two wards at present in which babies are cared for.—John Foote, M.D., Washington, D. C., *Mother and Child,* Vol. 3, No. 5, p. 218.

✣

LEGISLATION—FEDERAL

(From bi-weekly reports of the National Health Council, April 15-May 15, 1922.)

PROGRESS ON MATTERS PREVIOUSLY CONSIDERED

Progress Under the Federal Maternity and Infancy Act.—The first meeting of the Federal Board of Maternity and Infant Hygiene as provided by the Act for the Promotion of the Welfare and Hygiene of Maternity and Infancy, which became a law on November 23, 1921, was held on April 18, 1922. Miss Grace Abbott, Chief of the Children's Bureau, was elected Chairman of the Board. The other members are Surgeon General H. S. Cumming of the Public Health Service and John J. Tigert, U. S. Commissioner of Education. The Board approved the final plans of the following twenty-three states for the use of the funds available under the Act: Alabama, Arizona, Arkansas, Connecticut, Delaware, Florida, Georgia, Idaho, Indiana, Kansas, Kentucky, Mississippi, Missouri, Montana, Nebraska, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Virginia and Wyoming.

Forty-one states have now accepted the terms of the Maternity and Infancy Law, either by legislative act or by proclamation of the governor in the absence of a legislative session. Four hundred and ninety thousand dollars was appropriated by Congress for the fiscal year ending June 30, 1922. For the year ending June 30, 1923, the full $1,240,000 is available.

H. R. 7456. The Tariff Bill and Public Health.—Passed the House July 21, 1921. Reported favorably with many amendments to the Senate by the Committee on Finance, April 11, 1922. This measure contains many items of interest to the medical profession of the country and deals indirectly with public health by levying a duty on many medicines, chemicals used in the manufacture of medicine, drugs, surgical and laboratory instruments, etc.

The bill leaves on the free list the following: antitoxins, vaccines, viruses, serums and bacterins used for therapeautic purposes; barks, cinchona or other, from which quinine may be extracted; books, maps, music, photographs, etc., by institutions for religious, educational, scientific or literary purposes, not for sale, under regulations of the Secretary of the Treasury; borax, crude or unmanufactured; iodine, crude; nux vomica; quinine sulphates and all alkaloids and salts of alkaloids derived from cinchona bark; sodium, nitrate, sulphate, crude or salt cake, and niter cake; teeth, natural or unmanufactured.

H. R. 11228. Navy Department.—Passed the House April 15, 1922.

One of the bitterest fights that has marked the present session of Congress occurred when the Navy Department Appropriation bill was reported by the Committee on Appropriations. The naval personnel was fixed at 67,000, but an amendment was finally added, increasing the number to 86,000. The result will be a continuation of the present number of officers, including the medical corps. This appropriation bill for 1923 contains the following items of interest to public health:

Bureau of Medicine and Surgery

Salaries	$ 61,150.00
Medical Department	2,400,000.00
Contingent	435,000.00
Care of Hospital Patients	85,000.00
Bringing Home Remains, etc	65,000.00
Total	$3,046,150.00

The bill is under consideration by Senate Committee on Appropriations pending action by Congress on Army, Navy and Public Health Service pay bill (H. R. 10972) which is now being debated in the House. Senate and House leaders decided that the appropriation bills of both the Army and the Navy could not be enacted into a law by Congress until the question of the pay of the personnel had been settled. These measures, therefore, are

being held in abeyance until a final disposition is made of the Wadsworth McKenzie bill.

S. 3470. Prevention of Venereal Disease in the District of Columbia.—Introduced by Senator Owen of Oklahoma, April 17, 1922. Referred to the Committee on the District of Columbia. This bill is a copy of H. R. 11021 (A. J. P. H. June.) introduced in the House by Representative Gilbert on March 23, 1922.

H. R. 11547. Passed House May 5, 1922; passed Senate May 6, 1922. This bill appropriates $12,000,000 for additional hospital facilities for the U. S. Veterans' Bureau. It also authorizes the director of the U. S. Veterans' Bureau, with the approval of the President, to incur additional obligations not to exceed $5,000,000 for hospital purposes. This bill is supplemental to H. R. 10864 which became a law on April 20, 1922, and which authorized an appropriation of $17,000,000 for additional hospital facilities. (A. J. P. H., June.)

In the report of the Committee on Appropriations the following outline of the hospital facilities to be acquired is given:

District No. 1, New England area; neuropsychiatric cases, 500 beds, $1,500,000.

District No. 2, New York, New Jersey, and Connecticut; tuberculosis cases, 550 beds; general cases, 150 beds; total beds, 700; $2,100,000.

District No. 4, West Virginia, Virginia, Maryland and District of Columbia; general cases, 250 beds, $750,000.

District No. 5, North Carolina, South Carolina, Georgia, Florida and Tennessee; general cases, 200 beds, $600,000.

District No. 6, Louisiana, Alabama and Mississippi; neuropsychiatric cases, 350 beds, $1,050,000.

District No. 7, Ohio, Indiana and Kentucky; neuropsychiatric cases, 500 beds, $1,500,000.

District No. 8, Illinois, Michigan and Wisconsin, neuropsychiatric cases, 1,000 beds, $3,000,000.

District No. 9, Missouri, Kansas, Iowa and Nebraska; neuropsychiatric cases, 500 beds, $1,500,000.

District No. 10, Minnesota, North Dakota, South Dakota and Montana; neuropsychiatric cases, 500 beds, $1,500,000.

District No. 12, California, Arizona and Nevada; tuberculosis cases, 500 beds, $1,500,000.

District No. 13, Washington, Idaho and Oregon; neuropsychiatric cases, 250 beds, $750,000.

District No. 14, Oklahoma, Texas and Arkansas; neuropsychiatric cases, 200 beds, $600,000.

TOTAL (5,450 beds)	$16,350,000
Tuberculosis, 1,050 beds	3,150,000
Neuropsychiatric, 3,800 beds	11,400,000
General Cases, 600 beds	1,800,000

H. R. 2193. Habit-Forming Drugs.—Passed House May 4, 1922. Referred to Senate Committee on Finance, May 5, 1922. This bill amends the Opium Acts of February 9, 1909, and January 17, 1914. The bill would create a Federal Narcotic Control Board to consist of the Secretaries of State, Treasury, and Commerce, but the administration of the bill would be entrusted to the Treasury Department. Importation of narcotic drugs into this country or its territories would be unlawful except in the case of crude opium and coca leaves for medicinal use as permitted by the Board. Suitable regulations controlling such importation would be prescribed and duties provided. Drugs seized under provision of the Act, due to illegal entry, would be turned over to the Board for medicinal purposes. Exportation of narcotic drugs other than smoking opium, which is absolutely prohibited, would be permitted only to countries having ratified the International Opium Convention of 1912. Penalties are provided for infractions of the law.

H. R. 10101. District of Columbia.—As finally agreed upon by the Conference Committee of both Houses on May 3, 1922, this bill appropriates $250,000 for a home and school for the feeble-minded of the District of Columbia. The sum of $100,000 is made immediately available for construction purposes under plans to be approved by the Commissioners of the District of Columbia. The House has already approved the report of the conferences in so far as it relates to the home for the feeble-minded.

H. R. 10730. Agricultural Bill.—Differences between the Houses of Congress have been settled in conference, and the measure was sent to the White House for the President's signature on May 8, 1922. (A. J. P. H., May.)

H. R. 10972. Pay of Army, Navy, and Public Health Service.—Passed the House May 12, 1922. This bill was brought up for consideration under a special rule in the House, May 8, 1922, and after being debated, was passed on the 12th. An amendment proposed by Miss Robertson, which increased subsis-

tence rates for nurses from 60 cents to $1.20 a day was adopted. Rent money for nurses was raised from $40 to $60 a month. It is estimated that the total ultimate savings by the regulation of pay included in the provisions of the bill will reach $27,500,000. (A. J. P. H., June.)

H. J. Res. 297. Authorizing President to call Conference to Prevent Pollution of Navigable Waters.—Introduced by Representative Appleby March 29, 1922. Reported favorably by the Committee on Foreign Affairs, May 1, 1922. (A. J. P. H., June.)

H. R. 10941. Special Cancellation Stamps for Postoffices.—Passed the House April 3, 1922. Passed the Senate May 6, 1922. This bill will eliminate the necessity in the future of having Congress pass special acts for cancellation stamps when health expositions are held in various cities of the country. (A. J. P. H., June.)

S. 1911. Compensation for Employees.—Passed the Senate June 2, 1921. Favorably reported by the House Committee on the Judiciary, May 1, 1922. This proposed amendment to the United States Employees Compensation Act extends to one year the time for filing of original claims for compensation in cases where the persons affected served in the world war.

H. R. 10496. Free Postal Privileges for Publications for the Blind. Introduced by Miss Robertson, Feb. 18, 1922. Favorably reported by the House Committee on Post Office and Post Roads, May 1, 1922. The bill provides that certain publications for blind persons shall be transmitted through the mails free.

NEW LEGISLATION

S. 3480. Modification of the War Risk Insurance Act.—Introduced by Senator Calder of New York, April 18, 1922. Referred to the Committee on Finance. Several important changes in the awarding of compensation for war veterans, members of the Army and Navy Nurse Corps and their dependents are included in this proposed legislation. These changes base the right to compensation upon the character of disease from which the ex-service man is suffering. It is specially stipulated that in case any war veterans are shown to have a psychosis, a neurosis, or a psychoneurosis, active tuberculosis, or chronic empyema developing within three years after separation from active military or naval service, they shall be entitled to compensation, regardless of whether these diseases were contracted in line of duty or not. The rate of compensation for total permanent disability is fixed at $100 per month. A provision also prohibits the reduction of compensation of a disabled ex-service man unless a physical examination has been made since the previous rating. There are new regulations contained in the proposed act covering the lapsing of insurance policies. The U. S. Veterans' Bureau upon discharging a patient from a government hospital must furnish him with a statement of the medical finding as to his condition.

S. 3483. Special Policemen for District of Columbia.—Introduced by Senator Ball of Delaware, April 18, 1922. Referred to the Committee on the District of Columbia. Employees of the District of Columbia may be appointed to serve as special policemen by the Commissioners of the District of Columbia without additional compensation in an emergency under the provisions of this bill. This would allow inspectors of the Health Department to be so appointed.

S. 3544. Transfer of Activities of Inter-Departmental Social Hygiene Board to Department of Justice. Introduced by Senator Jones, May 3.

H. R. 11490. Introduced by Mr. Kahn, May 1. Referred to respective Judiciary Committees. This bill provides that the powers and duties of the agents of the Department of Justice be enlarged to include investigations of commercialized vice conditions in the vicinity of army and navy stations or any place where our armed forces or ex-soldiers and sailors may be stationed under the care and authority of the government. This work would be done in coöperation with local authorities. The transfer of the Interdepartmental Social Hygiene Board, which has been carrying on this work independently for the last three years, to the Department of Justice, would be effected by the bill. An appropriation of $325,000 is authorized by the bill.

H. R. 11592. Construction of Rest Camps for Disabled Soldiers.—Introduced by Representative Gallivan, May 9, 1922. Referred to the Committee on Buildings and Grounds. Five million dollars is appropriated by this measure for the acquiring of sites and the construction of rest camps in the various districts of the U. S. Veterans Bureau in order to benefit disabled ex-service men.

S. 3576. Acquiring of Sites for Hospitals and Sanatoriums.—Introduced by Senator Stanley of Kentucky, May 9, 1922. Referred to Committee on Public Buildings and Grounds. H. R. 11588. Introduced by Representative Kincheloe of Kentucky, May 9, 1922. Referred to Committee on Public Buildings and Grounds. These two bills introduced simultaneously in the Senate and the House are identical in language and provide for the protection of the U. S. government in the acquisition of sites for federal hospitals and sanatoriums by condemnation.

CONGRESS AND TUBERCULOSIS

S. 398, S. 1971, S. 3278 and H. R. 10864.—During the year that the 67th Congress has been in session, the subject of tuberculosis has been before it a number of times. On April 12, 1921, the day after the Special Session convened, Senator Ashurst introduced a bill (S. 398) to provide federal aid in caring for indigent tuberculous persons. The bill was referred to the Committee on Interstate Commerce, where it still is. On June 6, 1921, Senator Sheppard introduced a bill (S. 1971) to admit civil employees of the government stricken with tuberculosis to government hospitals. A similar bill was introduced in the House on October 28, 1921, by Mr. Hudspeth. No action has been taken on either bill. A resolution of the National Tuberculosis Association concerning the rehabilitation of tuberculous ex-service men was printed on the first page of the Congressional Record of June 24, 1921.

The act creating the U. S. Veterans' Bureau, signed by the President on August 9, 1921, aside from important hospital provisions, amended the War Risk Insurance Act with reference to tuberculosis as follows:

"An ex-service man who is shown to have an active pulmonary tuberculosis or neuropsychiatric disease (of more than 10 per centum degree of disability in acordance with the provisions of subdivision (2) of section 302 of the War Risk Insurance Act, as amended) developing within two years after separation from the active military or naval service of the United States shall be considered to have acquired his disability in such service, or to have suffered an aggravation of a preëxisting pulmonary tuberculosis or neuropsychiatric disease in such service, but nothing in this proviso shall be construed to prevent a claimant from receiving the benefits of compensation and medical care and treatment for a disability due to these diseases of more than 10 per centum degree (in accordance with the provisions of subdivision (2) of section 302 of the War Risk Insurance Act, as amended) at a date more than two years after separation from such service, if the facts of the case substantiate his claim. This section shall be deemed to be in effect as of April 6, 1917."

Other matters before Congress of special interest to tuberculosis workers include an appropriation in the Agriculture appropriation bill (year ending June 30, 1923) of $2,877,600 for the eradication of tuberculosis in animals; a bill (S. 3278) to provide a school in the District of Columbia for "tubercular" pupils; and finally, the bill (H. R. 10864) appropriating $17,000,000 for increased hospital facilities for veterans, which was signed by the President on April 20, 1922. (See S. 3480.)

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LEGISLATION—STATE

(From bi-weekly reports of the United States Public Health Service with the coöperation of the National Health Council, April 15, 1922.)

Since all the state legislatures which have been holding sessions have adjourned except those of Massachusetts and Rhode Island, this bulletin will be the last one issued during this year. The Rhode Island legislature will adjourn very soon. The Massachusetts legislature continues until the middle of the summer and those of Louisiana and Georgia meet in May and June respectively. Any data of interest on health legislation in these states will be reported later.

Maryland

The legislature adjourned at midnight, April 3. Final action on health bills was as follows:

SENATE BILLS

S. 122. Providing for the appointment of a health officer for Allegany County. Passed Senate and amended in the House and passed.

S. 127. Providing for the extension of the Injunction and Abatement Law, relating to places of prostitution. Died in the Senate Committee.

S. 347. Providing for a commission to govern the Eastern Shore Tuberculosis Hospital. Passed both Houses.

S. 330. Relating to the Washington suburban sanitary commission. Passed both Houses.

HOUSE BILLS

H. 219. Amending the law relating to the qualifications of applicants for licenses as pharmacists. Passed House. Amended in Senate and passed. (A. J. P. H., May.)

H. 310. Prohibiting experiments on dogs. Killed in House. (A. J. P. H., May.)

H. 339. Amending the Optometry Law. Passed both Houses with amendments. (A. J. P. H., May.)

H. 417. Repealing Act of 1920 which prohibits the soaking of poultry, after it has been killed, in cold water. Passed both Houses.

Mississippi

The Mississippi legislature adjourned on April 8. Progress is as follows:

Mental Hygiene. H. 278, making appropriation for the colony for feeble-minded, passed House. Several other bills were unfavorably reported. Appropriations for insane hospitals were approved. (A. J. P. H., June.)

School Hygiene. A bill requiring sanitary privies at rural schools passed the Senate.

Venereal Diseases. H. 292. Passed, but the appropriation was reduced from $20,000 to $16,000. Bills requiring pre-nuptial examinations (H. 341, H. 704) and prohibition of marriage of infected persons (H. 646, H. 647) were unfavorably reported, as was also a bill penalizing houses of prostitution (H. 819).

New York

The following bills have been signed by the Governor and are now laws:

Pr. A. 588, amending Section 921 of the Criminal Code re compulsory maintenance of children, is Chapter 67. Pr. A. 179, amending Section 486 of the Penal Law re expenses of commitment and maintenance of children committed to institutions, is Chapter 95.

Pr. A. 1674, amending the town law re sewer systems is Chapter 163.

Pr. A. 1756, amending the public-health law re practice of nursing. (Chapter 288.)

Pr. S. 1369, amending farms and markets law re skimmed milk and products. (Chapter 365.)

Pr. S. 1181, amending farms and markets law re classification of milk and byproducts. (Chapter 366.)

Pr. S. 1831, amending public-health law re division of maternity, infancy, and child hygiene.

STATE HEALTH NOTES—GENERAL

Alabama

In the summer of 1921 the city of Birmingham, Ala., and the Tennessee Iron and Coal Company completed two swimming pools at Ensley, within the limits of the city and at convenient walking distance from the industrial section, supported by the plants and the mining interests of the company.

The capacity of each pool is approximately 250,000 gallons of water. They are filled with filtered water from the city supply. The water is then pumped from the lowest point in each pool by a centrifugal pump and forced through pressure filters and thence to the ultra violet ray sterilizers, from which it returns to the pool. The water in both pools is turned over every 24 hours, and although the attendance is from 300 to 2,000 per day, bacteriological tests show that the water is satisfactory at all times. To prevent moss and algae from forming the pools are emptied every two weeks and scrubbed.—*The American City*, April, 1922, p. 312.

California

The Japanese are particularly susceptible to typhoid fever. The case rates and the death-rates for this disease are higher for the Japanese than for any other foreign-born residents of California. For these reasons the State Board of Health has started an active and intensive campaign for the improvement of sanitary conditions of Japanese vegetable, berry and fruit farms. During March more than 130 of such places were inspected. Insanitary conditions were found on practically every ranch visited. These bad conditions are due to dilapidated vault toilets, open cesspools, lack of plumbing facilities and general uncleanliness. The improvement of such conditions was taken up with the owners of the land, the Japanese tenants and the secretaries of the Japanese associations. The State Board of Health inspectors met with a ready response to their requests that new equipment be installed. The Japanese associations and the tenants of the farms involved showed a marked willingness to coöperate with the State Board of Health in this work.

In most instances the landowners are supplying the material and the Japanese tenants are performing the necessary labor in the installation of new sanitary equipment. To date, more than 100 old cesspools have been

filled in, and 80 new cesspools have been provided. More than 3,000 feet of drainage pipe have been laid and more than 16 sinks have been connected with cesspools. More than 70 toilets have been made fly-tight, 16 old toilets have been demolished and more than 20 new toilets have been constructed.

The Japanese associations have given this matter considerable publicity in the local Japanese newspapers. A published appeal to Japanese farmers urging them to make the sanitary improvements recommended by the State Board of Health has been effective in arousing a splendid spirit of coöperation.—California State Board of Health *Weekly Bulletin,* April 15, 1922.

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Rabies is on the increase in California. Not only are large numbers of animals infected, but a considerable number of human beings have been bitten making it necessary for them to take the Pasteur treatment. A young man residing in Los Angeles was bitten February 27 on the face and wrist, came to the City Health Department March 2 for the Pasteur treatment, which was completed in 21 days, and died an agonizing death on April 21. It is seldom that death occurs when a person has taken the Pasteur treatment within a reasonable time after being bitten, but in this case it is supposed that death occurred because of the severity and location of the bites.

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The *Journal of the American Medical Association* for May 27, 1922, states that arrangements have been made by the San Diego Zoological Society for airplane delivery of anti-venom serum to be administered to persons bitten by rattle snakes in Southern California.

Florida

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DO YOUR PART

The above is a sample of publicity material used by the Florida State Board of Health to combat mosquitoes. Mosquitoes and their agency in the transfer of disease are of a health and economic importance to the people of Florida, second to that of no other group of insects. There are from 30 to 40 species of mosquitoes breeding within the borders of Florida, but only 4 are known as disease carriers. As the only known means of transmission of malaria and dengue fever in Florida is through the agency of mosquitoes, the logical way to control these diseases is to control the mosquitoes. As mosquitoes breed only where there is water, Florida is making a state-wide campaign to destroy all places that could be possible breeding places. The State Board of Health has just published a pamphlet entitled "Mosquitoes and Mosquito Control" by George W. Simons, Jr., Chief Sanitary Engineer of the State Board of Health, and George F. Moznette, Entomologist, Bureau of Entomology, U. S. Department of Agriculture.

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The Bureau of Communicable Disease, directed by Dr. George A. Dame, has entered upon a state-wide campaign of education in regard to smallpox and vaccination. Motion pictures and lectures will be used by the District Health Officers to combat a very active anti-vaccination propaganda which has been carried on for some time.

Through the efforts of Dr. Joseph Y. Porter, Sr., City Health Officer of Key West, thousands of school children and others have recently been vaccinated. That city is now practically immune to smallpox.

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The Flagler System of Railways and Hotels has, through the efforts of Capt. W. H. Gillette of the United States Public Health Service, attached to the Bureau of Communicable Disease, adopted the Industrial Plan for combating venereal disease amongst its several thousand employees and their families. The State Board of Health will be able to reach at least 25,000 people through the media of lectures, motion pictures, pamphlets, posters and clinics which will largely be supplied by the officials of the company.

Illinois

Of the 101 counties under the jurisdiction of the Illinois Tuberculosis Association, 98 have formed local associations. Sixty counties of Illinois employ full-time tuberculosis nurses, and others have part-time service. Surveys have been made in practically every county; 14 counties have erected tuberculosis sanatoria, 4 are in course of construction; 27 others have the power to construct or provide

care by taxation, and 3 municipal sanatoria are in operation. Seventy counties have the Modern Health Crusade in operation; there are many open-air schools, nutrition classes, permanent clinics, and dispensaries, with occasional diagnostic clinics held in connection with the State Association. This summer there will be two two-day conferences held by the State Association, one in the north and one in the south of the state. The death-rate from tuberculosis for the past year in Illinois was 85.1 per 100,000. The State Association has recently published a pamphlet calling attention to the fact that Illinoisans have been in the vanguard of the great migration to the west and southwest, and advising them to remain at home among friends unless they have funds to maintain themselves in another state which has not the facilities to provide for its own tuberculous people, much less for those of other states.

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The Jackson and Saline County medical societies recently held special meetings at Carbondale and Harrisburg, respectively, for the purpose of discussing public-health problems and policies with representatives of the State Department of Public Health. Subjects brought up for consideration embraced the reporting of births, deaths, and cases of communicable diseases, urban, school, and rural public-health nursing services, and the public-health duties of practicing physicians to individual families, to the community, and to the state. Along with these topics the subject of state medicine was brought up and it was made clear to the physicians present that the State Department of Public Health is definitely opposed to state medicine in any form. It was further pointed out that the policy of the Department of Health is to develop a mutual, positive coöperation with the practicing physician. As a result of the meetings the policies of the State Department of Public Health as established by Dr. I. D. Rawlings, director, were unanimously endorsed *in toto* by the two societies. Both meetings, which were described by the respective presidents as the most inspiring sessions held in many months, were well attended. Drs. Thos. H. Leonard, S. S. Winner, C. W. East, and Elizabeth B. Ball discussed public health from the point of view of the State Department of Public Health while every member present had something to say from the standpoint of the medical profession.

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The erection of a public-health district was the topic discussed by Dr. S. S. Winner of the State Department of Public Health before an audience composed of city and county officials and local business men in Galesburg on May 10. As a result of the meeting, which was brought about through the efforts of Dr. Fred K. Hall of Galesburg, the Elks Club of that city has inaugurated a campaign in favor of the proposition, and according to the plans the question will be submitted to a vote of the people at the next regular election. If carried, a public-health district will be established in keeping with a state law that provides for a tax levy sufficient to employ a full-time health officer and such supplementary personnel and equipment as is necessary for the organization and operation of an efficient public-health service. At the present time there are two such public-health districts operating in Illinois, one embracing the cities of La Salle, Oglesby, and Peru, and the other the township of Quincy in Adams County.

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Definite arrangements have been completed for installing new or additional public-health nursing services at Carbondale and Murphysboro in Jackson County, at Anna in Union County, and at Harrisburg in Saline County. A like service has been decided upon for the rural territory in Jackson County, while Saline County has the proposition under serious consideration. These developments are the results of three luncheon meetings held locally under the auspices of the State Department of Public Health. All city and county officials who were concerned in any way with the proposition at the different places were present. The State Department of Public Health was represented by the assistant director, the chief district health superintendent, and the supervising nurse. Representatives of the local medical societies, the public schools, women's clubs and parent-teachers' associations were also present. Meetings with the same object in view were scheduled for Franklin and Marion counties. The whole project is the outcome of a determination on the part of the State Department of Public Health to meet in the most practical way possible a long

existing need for a more adequate public-health service in southern Illinois.

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At a meeting held in Chicago on May 2 representatives of the State Department of Public Health, the Illinois Central Railway Co. and the U. S. Public Health Service, it was agreed that the Illinois Central Railway Co. would actively coöperate in the proposed plan for draining a large area of territory in the vicinity of Carbondale for the purpose of destroying the breeding-places of malaria-carrying mosquitoes. Eight thousand dollars was the estimate of the probable cost of the undertaking made by the railway engineers, and provision was made that the State Department of Public Health should handle all matters involved in obtaining ditching rights through private property. The railroad was represented at the conference by the first vice-president, the chief surgeon, and two sanitary engineers. In behalf of the State Department of Public Health the director, the chief sanitary engineer, and two members of the advisory board appeared. The U. S. Public Health Service was represented by a medical officer and a sanitary engineer. Efforts are being made to start the drainage work at Carbondale without further delay.

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Through the coöperative efforts of the State Departments of Public Health and Public Welfare, arrangements have been completed for the establishment of a trachoma clinic at Anna. A special ward of 15 to 20 beds and a special nursing personnel has been provided by the Anna State Hospital for indigent surgical cases. The opening of the clinic is the outcome of a survey recently conducted under the direction of the State Department of Public Health by Dr. A. B. Troupa, of the Chicago Charitable Eye, Ear, and Nose Infirmary, who reported 116 positive and suspect cases of trachoma out of 300 school children examined.

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Dr. Isaac D. Rawlings along with a number of other state officials made a survey of the flooded areas in the Illinois River Valley on April 26 to determine the magnitude of sanitary, relief and rehabilitation problems that have arisen at several points on account of unusual inundation. As a result several additional physicians attached to the State Department of Public Health have been detailed for duty in the valley with instructions to carry out vigorously the sanitary precautions that are indicated. Particular emphasis is being laid upon the protection of drinking water supplies and the safe disposal of wastes. Every possible means is being employed to encourage general vaccination against typhoid fever. All of the various public-health and relief agencies operating on a large scale in Illinois are now in the field and are working harmoniously together.

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A second attempt to create a strong public-health organization of an extra-governmental character in Illinois was the purpose of a meeting recently held in Chicago. The various agencies represented, which included the State Departments of Health, Education, Public Welfare, the Illinois Tuberculosis Association, the Illinois Society for the Prevention of Blindness, the Illinois Society for the Control of Cancer, the Illinois Child Welfare Society, the Illinois Social Hygiene League, the Illinois Federation of Women's Clubs, the Illinois State Medical Society, and the Illinois Hospital Association, indicate the powerful influences that speak favorably for the success of the proposition. The discussions ended in a decision to organize the Illinois Health Society and temporary officers, with Dr. William A. Evans of Chicago as president, were chosen. A state charter has been obtained and meetings for the board of directors scheduled.

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A public-health unit is to be established in Morgan County. The initial personnel of the organization will consist of a full-time county health officer and two rural public-health nurses. The operating expenses of the public-health unit will be partially borne by the International Health Board.

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Thos. G. Hull, Ph.D., superintendent of the diagnostic laboratories of the State Department of Public Health, has been appointed by Surgeon General Cumming of the U. S. P. H. S. as assistant collaborating epidemiologist for Illinois.

Indiana

Dr. J. N. Hurty has resigned from the secretaryship of the State Board of Health, to take effect September 30, as he has been nominated for the State Legislature. It is his aim to secure an all-time health officers' law for Indiana. He received the highest vote in the

primaries of any of the 11 candidates nominated from Marion County (containing Indianapolis) by 2,000 votes. All of these have pledged their support to his health legislative program, and the prospects of its success are bright.

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The judges of the Appellate Division of Indiana class typhoid fever with preventable industrial diseases. They hold that because an employee became ill with typhoid from drinking impure water furnished in his employer's factory he is entitled to compensation, just the same as though he had lost a finger by an unguarded machine, or any other industrial accident.

Iowa

Dubuque, Iowa, has adequately protected its main business district from the scourge of fire and provided for the health of citizens, through the completion of a 7,500,000-gallon covered reservoir located on an eminence 250 feet above the valley business center, and a few blocks away from the main factories and business places. It was completed several years ago, but, because of its open top, it was impossible to keep the water clean. The fire hazard was greatly increased when it was put out of commission for cleaning every ten days or so.—*The American City,* April, 1922, p. 317.

Kentucky

"Not a morsel of food for a fly to light upon" is the slogan and the achievement of Lexington, Ky., in the construction of a modern market house that is the last word in science and sanitation so far as consolidated markets are concerned. The building is a model of compactness, convenience and completeness. Before tenants are permitted to take over the stalls, all fixtures are set up, including cash registers and scales, and are uniform throughout. Sealed glass cases of newest type are used for holding and displaying perishable wares, and the entire basement is given over to the operation of a refrigerating plant and dry storage, with individual spaces for the tenants. The project originated in the Lexington Board of Commerce and was worked out under the direction of Dyer J. Lockwood and an engineering corporation experienced in such work.—C. F. Dunn, Board of Commerce, *The American City,* April, 1922, p. 371.

Maine

Beginning in February, 1922, the Maine State Department of Health has begun to reissue its health bulletin after having discontinued it for a year or more.

Maryland

For twenty-one years Baltimore has run, in connection with its public bath-houses, public laundries. Located in the center of a thickly populated district, the first one was open four days a week to women and two days to men, but due to the number of men taking advantage of this opportunity, it was eventually made exclusively for men. The men who frequent the public laundries are often oyster dredgers up from a long trip down the bay, odd job men from cheap lodging houses, or tramps who have heard from other travelers of the road of a chance to clean up. If a man is able to pay, ten cents is charged for a towel, a cake of toilet soap and a ticket which entitles him to a bar of laundry soap and the privilege of using one of the tubs, where he proceeds to wash his clothes. In four other public bath-houses laundries were installed, where women could do their entire family wash in four hours at a cost of 28 cents, while their children were taken care of in adjoining playgrounds.

Mr. Robert F. G. Kelley, secretary and superintendent of the Free Public Bath Commission of Baltimore, recommends that wherever a city contemplates installing public laundries there should be playgrounds adjoining where mothers may leave their children, and that great care should be exercised in the selection of employees, as poor employees often keep patrons away. It is conceded that of such institutions in the United States five of the best are in Baltimore. Laundries are of vital importance to a city. Affording people an opportunity to be clean gives them an appreciation of health and decency and enhances their moral and spiritual tone.—*The Nation's Health,* May, 1922, pp. 179-280.

Massachusetts

Dr. Leland French has been appointed District Health Officer in the Berkshire District. He was formerly epidemiologist in the Division of Communicable Diseases.

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The Attorney General of Massachusetts has rendered his judgment that the Sheppard-Towner Act is unconstitutional.

The State Department of Public Health and the State Department of Education have recently held conferences in the different normal schools for superintendents and school nurses on the subject of school hygiene.

Michigan

Tuberculosis has today sunk to the rank of the fourth most important cause of death in Michigan, being surpassed by cancer, heart disease, and pneumonia, according to recent studies of the State Department of Health.

Ninety-three fewer persons died from tuberculosis in the state during the first three months of 1922 than in the corresponding quarter of 1921, department records show. The 1922 total is 670, equivalent to 68.2 deaths among every 100,000 of the population. This is the lowest tuberculosis death-rate ever reached in Michigan, authorities say, and one of the three or four lowest in the country. With 763 deaths in the same period the preceding year, the rate stood at 79.6, or 11.4 more deaths to every 100,000 persons.

Of the 670 deaths this year, 434 occurred in the state outside of Detroit, and correspond to a rate of 60.9. Detroit reported 236 deaths, giving the city a rate of 82.5. The average rate for the state for 1921 was 71.6.

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Miss Lucile Moore, R.N., a graduate of George Peabody College for Teachers, Nashville, Tenn., the Vassar Training Camp for Nurses, and Mt. Sinai Hospital, has been appointed assistant director of the Bureau of Education of the Michigan Department of Health.

Arthur Haw, B.S., Harvard, '13, and M.S., Illinois, '18, is acting as bio-chemist of the Michigan Department of Health.

Missouri

The Tuberculosis Society of St. Louis, incorporated under the laws of the State of Missouri, is organized with 40 directors, elected annually, who upon their election choose their own officers and chairmen of standing committees. The society is managed by an executive committee composed of the officers, chairmen of the standing committees and two members of the board at large. The society has been in existence for 18 years and has recently conducted a very successful campaign, one part of which was the sending out of letters to 1,100 women, members of the Town Club, and 1,500 men, members of the City Club.

The State Board of Health of Missouri has created an engineering division and has secured the services of Mr. George W. Putnam, as State Sanitary Engineer, to head this new division.

Mr. Putnam has had considerable experience in state board of health engineering work, both with the Minnesota State Board of Health and the California State Board of Health. During the war he was engaged in water supply work in the Sanitary Corps of the Army. His activities also have extended into the field of selling water-softening apparatus.

New Hampshire

The annual meeting of the New Hampshire Medical Association was held in Concord, lasting two days, and was well attended by the general public as well as by the profession.

One of the most important points of discussion was the proposed change of the Dartmouth Medical School from a two-year back to a four-year course.

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During the summer session of the Keene Normal School a splendid opportunity is offered by the State Board of Education to school nurses to study some of the subjects which will be most useful to them in their work and to listen to special lectures covering all phases of school nursing.

The plan of work as outlined is most interesting and comprehensive and cannot fail to have a broadening influence on the general public-health program.

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The Nursing Division of the New Hampshire Board of Health presents the following program and clearly defines its relation to official and non-official health agencies as well as to the general public:

1. To coördinate more closely the work of the State Department of Health with official and non-official health agencies, and to assist and coöperate in all possible ways.
2. To plan and develop health programs.
3. To arrange health exhibits, especially in connection with the welfare of maternity and infancy.
4. To give definite help to public-health nurses in their respective communities by assisting them in educating the public and awakening the interest of their people in health matters in general by means of educational literature, illustrated lectures, moving

pictures and health exhibits and posters. (Free of charge except for transportation.)

5. To devise ways and means of carrying on surveys, and to investigate causes and maternal and infant mortality.

6. To carry on in a carefully selected rural community an intensive prenatal postnatal and child welfare program in order to demonstrate to the people of New Hampshire the value of the work, and the great need for the better protection of mothers and infants.

7. To arouse the interest and secure the coöperation of every person in New Hampshire in this most vital cause, and especially to secure the coöperation of every nurse and public-health worker in order that we may lower the maternal and infant death-rate in our state.

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The program of the New Hampshire Tuberculosis Association for 1922, approved by the executive committee at a recent meeting, covers the continuing and developing of the present state-wide system of tuberculosis clinics and nursing service in an effort to locate every case of tuberculosis in the state, to continue the education program with reference to tuberculosis and as to the need for additional institutional facilities for such sufferers, and to demonstrate that need by a further development of the state tuberculosis survey. Finally they aim to expend in conjunction with other health agencies every means for building up resistance to disease in general and tuberculosis in particular.

In all clinics children found to have active tuberculosis are excluded from schools and as far as possible admitted to sanitariums, and those found to be 7 per cent below normal weight, whether tuberculous or not, are put upon routine treatment for malnutrition. All work of this character is done by physicians who are specialists in their respective lines, and also by graduate nurses.

It is planned to place a graduate nurse who has had actual experience in nutrition work in some center in the state. In coöperation with school authorities she will endeavor to bring all children in two or more schools up to standard weight. This is in the endeavor to prove to the public the importance of educational work along nutrition lines. The Modern Health Crusade will, of course, be continued as good results have been secured through this method of developing health habits.

New Jersey

Dr. William H. Park, director of the Bureau of Laboratories of the New York City Health Department, has been engaged by the Board of Health of Montclair, New Jersey, to make a survey of methods of handling milk consumed in Montclair, and to draw up a new milk ordinance to replace the one now in force.

New Mexico

That New Mexico is well in the lead in county health work is shown by a report recently issued by the U. S. Public Health Service, according to a bulletin of the New Mexico State Bureau of Public Health. This report covers the year just past and indicates which states have provisions for full-time health officers serving the rural populations. New Mexico ranks tenth so far as the number of counties having such health service is concerned. When the percentage of rural population reached is taken into consideration, this state ranks sixth. These figures were for last year. It is interesting to note that the five states leading in respect of rural population reached are Vermont, Ohio, North Carolina, Alabama, and Washington. Such states as New York and Massachusetts, which would be expected to have the highest grade of rural health work, do not appear in the list at all.

New York

On May 11 at the Holtel Biltmore the State Charities Aid Association celebrated the fiftieth anniversary of its founding in the home of Miss Louisa Lee Schuyler, a great-granddaughter of Alexander Hamilton, at 19 West 31st Street, New York City, by a few public-spirited men and women who realized the obligation of the public to see that institutions are so conducted as best to promote the ends for which they are maintained.

In the records of this association is to be found the fruit of organization and accomplishment. Because it has worked with system, the association is responsible for the facts that the insane are now cared for and treated in asylums, instead of merely languishing in poorhouses, that victims of tuberculosis are treated efficiently, that the first training school for nurses in America was established in Bellevue in 1873, that improvements in child care have been brought about, and, largely, that the city has a public-health law which means protection to millions. These are con-

structive achievements which could not have been gained without organization.

The membership now numbers 12,000 citizens, representing all the counties in the State, and has become an institution of which all New York people may well be proud.

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During 1921 the Public Health Council of New York enacted several amendments to the Sanitary Code, the most important of which are as follows:

1. Owing to the fact that complete sterilization is frequently impossible without actual destruction, the manufacture or sale of shaving brushes made from horsehair was prohibited by Regulation 6a of Chapter VII.

2. Regulation 41a of Chapter II provides that the local health officer must report immediately to the State Department of Health whenever the existence of an outbreak of diarrheal disease comes to his attention.

3. Regulation 2b of Chapter II requires the health officer to confine or destroy any animal suspected of being affected with rabies. If the animal is killed the head must be sent to the State Veterinary College at Ithaca for examination.

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As a result of a course of lectures on Health Conservation delivered by Benzion Liber, M. D., Dr. P. H., editor of *Rational Living*, at the New York Labor Temple, a preventive dispensary was opened there by Dr. Liber on April 18 under the name "Health Conservation Center." The center will not be a dispensary in the usual sense of the word. Patients with definite symptoms of disease and those who need treatment will not be accepted. But all those who want information concerning individual questions of health, food, living rooms, clothing, bathing, rest, exercise, intimate and married life, pregnancy, hygienic habits, child care, working conditions, the use of the spare time will be examined if necessary, and will obtain the advice suitable to their cases. The service will be free of charge.

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At the recent annual meeting of the National Tuberculosis Association, Mr. John A. Kingsbury, Secretary of the Milbank Fund of New York City, announced that practically the entire income of the $10,000,000 in that fund would be devoted to a series of community tuberculosis demonstrations. The amount available would range from $300,000 to $400,000 per year. The demonstrations will be conducted in three or more communities of New York State.

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Eleven tuberculosis hospitals in New York State have adopted occupational therapy as part of their regular treatment, as a result of the demonstration made in each of them by the State Charities Aid Association.

Twelve occupational aides are now conducting workrooms and shops in county hospitals with 500 patients daily under their supervision.

Governor Miller recently signed a bill authorizing a county or city maintaining a public general hospital or a sanatorium for the treatment of tuberculosis to establish an occupational therapy department in connection with the institution. Experiments with ex-service men in army hospitals showed it was invaluable for tuberculous patients. Every hospital under the Veteran's Bureau has a strong occupational therapy department for tuberculous men, mental cases, and those with orthopedic injuries.

The State hospitals for the insane are doing much excellent work along the same lines, though on a limited scale. The appropriation this year is $13,700, which will permit the appointment of a director and five or six aides in different institutions where intensive demonstrations will be made. It is the hope of the State Hospital Commission to reach especially the difficult patients through curative handicrafts.

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The author reports the occurrence of a localized outbreak of jaundice near Cooperstown, N. Y. Fourteen cases occurred among 36 pupils in a one-room school, and in addition 4 cases in their immediate families. The mother of 2 of these sick school-children was taken to a hospital for delivery. Within the following month, 3 out of a staff of 16 nurses in this hospital developed jaundice, and in addition 5 other nurses became ill, but without jaundice. Seven of the 8 nurses affected had cared either for the ill woman or for a nurse ill with jaundice. There were no other cases of epidemic jaundice in the vicinity during this outbreak. The clinical picture as it appeared in these cases is similar to that usually

reported in other outbreaks of epidemic or infectious jaundice in the United States and England. It appears that the outbreak here described was spread by contact from person to person.—H. Williams, *N. Y. State Jour. of Med.*, Apr., 1922, 150. (*D. G.*)

✣

Dr. Herman M. Biggs, State Health Commissioner, is at present in Europe and will return about the middle of June.

Under the Davenport Act, the Division of Child Hygiene becomes the Division of Maternity, Infancy and Child Hygiene. The appropriation for the division is $160,000. Dr. McKay is still director.

A new addition is to be made to the State Laboratories which will cost $90,000.

The annual conference of Health Officers and Public Health Nurses will be held June 27-29 in Saratoga Springs, with headquarters in the Grand Union Hotel.

The Public Health Education Division has purchased the following new films: "The Knowing Gnome," "Come Clean," "Every Woman's Problem," and "Mrs. Brown vs. High Cost of Living."

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At the annual meeting of the New York Nutrition Council, held at the Russell Sage Foundation recently, a report of the Committee on Statistics entitled "Height and Weight as an Index of Nutrition," was presented by John C. Gebhart of the New York Association for Improving the Condition of the Poor. This report is of great practical value to nutrition workers and has been issued for the New York Nutrition Council by the A. I. C. P., 105 E. 22d St.

The report of the Committee on Economic Standards was presented by Lucy H. Gillette, Chairman. This report outlined "A Food Budget as Related to Social Work," and gave "Fifteen Points for the Social Worker," engaged in nutrition work. This report has also been printed and can be secured from the A. I. C. P.

✣

The Associated Out-Patient Clinics of New York City, organized in 1912 as a federation of out-patient departments of the leading hospitals of the city, together with a number of dispensaries unattached to hospitals, recently resumed activity after an enforced lapse during the war. The dispensaries of the city have grown rapidly during recent years, it being estimated that 1,250,000 persons received dispensary care in New York City during 1921. Hence, the Associated Clinics feels an increasing responsibility to accomplish the purpose for which it was founded: the advancement of the standards and methods of out-patient work and the coördination of the many existing dispensaries and out-patient clinics of the city. The office of the Clinics is in the building of the Academy of Medicine, 17 West 43d Street, New York.

The Venereal Disease Section some years ago worked out standards which have been adopted in the sanitary code of the New York City Health Department. This section is now preparing instruction sheets for patients and record forms for venereal clinics.

The Ophthalmology Section is making a study of professional methods, equipment, and follow-up service in the eye clinics of the city, with the expectation of formulating standards for eye clinics in the near future.

Before the war the Pediatric Section prepared standards for children's clinics. These are now being revised with the aim of classifying existing clinics and assisting some local institution in operating a model demonstration pediatric clinic.

The Socal Service Section has finished a survey of 54 social service departments in New York City, and is now coöperating with the Venereal Disease Section with the aim of advancing standards and improving methods in this adjunct of clinic efficiency.

The Hospital Conference of New York City has agreed to act as a Section of Administration of the Association.

North Carolina

The North Carolina Public Health Association held its twelfth annual meeting in Winston-Salem, Monday, April 24. The address of the president, Dr. L. J. Smith, of Wilson, was on "A Need, a Vision and an Ideal." Papers were read on a number of important subjects.

Ohio

The Cincinnati Public Health Federation in its Bulletin of February-March, 1922, reports great accomplishments for the past year, among which were the follow-up of emigrants, survey of hospital facilities for children, publication of a bulletin of information service for coöperating agencies, the maintenance of a speakers' bureau, and finally the undertaking

of the Cincinnati Health Exposition, an unsurpassed contribution to the health movement. There are a number of divisional councils, each taking care of a particular class of work such as mental hygiene, cancer control, child hygiene, better housing, tuberculosis prevention and control, nursing and social hygiene. The council for better housing reports having made 5,838 visits during the year 1921, having moved many families to better locations, and having induced many owners to better conditions and reduce rents. The council on tuberculosis reports a great decrease in the number of deaths due to tuberculosis in Cincinnati, and a greater number of those infected being taken care of in hospitals. They are making every effort to reach the incipient cases, and provide places where they may be treated without coming in contact with the distressing conditions which surround a tuberculosis hospital. The plans of the Federation for 1922 cover a still more extensive program.

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In Dayton the public-health nursing service operates with ten nurses of the Visiting Nurses' Association and ten city nurses under the supervision of the Visiting Nurses' Association and the Commissioner of Health. They do all kinds of nursing in their districts except school work. A card with a certificate of birth is taken to the home of every child, whether of well-to-do or of indigent family, whose birth is reported. This gives the nurse entry into every such home, as the infant hygiene record cards can be obtained in no other way.—*The American City*, April, 1922, p. 322.

Philippine Islands

According to a recent number of the *Monthly Bulletin* of the Philippine Public Health Service, the School of Public Health of the University of the Philippines is to be reopened. A degree of Doctor of Public Health or its equivalent will be conferred upon all candidates who successfully complete the course.

Texas

Dr. John H. Florence, the newly appointed state health officer of Texas, was born in Texas. He received his medical education in Louisville, Ky. He was in general practice for ten years. He served four years as county health officer of Dallas County, and four years as city health officer of Dallas; afterwards with the State Health Department as assistant state health officer and quarantine officer at Galveston. He was acting marine hospital surgeon for two years at Brownsville, Texas, detailed for immigration duty. He was medical director and vice-president of the Great Southern Life Insurance Company for ten years, and was appointed state health officer January 20 of this year.



DR. J. H. FLORENCE

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The State Board of Health of Texas considered it necessary to maintain an adequate supervision of the public water supply of that state. That there was a special need for such control was shown by 2,000 estimated deaths from typhoid fever in 1918, lack of sufficient travel appropriations for the state sanitary engineers to inspect all water plants and lack of adequate legislation covering the sanitary protection of water supplies. In order to improve the control of water plants, the State Board of Health, University of Texas, and Baylor University coöperated in conducting four schools for operators of water plants. These courses, for which no tuition fee is charged, are outlined for two weeks and include practical work as well as methods. In abstracting an article describing this work, the *Public Health Engineering Abstracts* for May 6, 1922, states that the success of the Texas

school has induced the state of Oklahoma to adopt the same method of helping to protect its water supplies.—L. O. Bernhagen, Sanitary Engineer, Beaumont, Texas. *Journal American Water Works Association,* Vol. 9, No. 2, March, 1922, pp. 300-6.

Wisconsin

Dr. William Waldo Bauer, Milwaukee, has been appointed epidemiologist for the Milwaukee Health Department, succeeding Dr. C. J. Kenney, resigned.

Dr. I. F. Thompson resigned as epidemiologist for the Wisconsin State Board of Health, to accept appointment as deputy commissioner of health of the City of Milwaukee. He succeeds Dr. E. V. Brumbaugh, who became full-time health officer of Madison, Wis.

The Wisconsin State Board of Health has apopinted Miss Aimee Zillmer, of Milwaukee, as assistant in education for lecture work in social hygiene and related subjects. Miss Zillmer's last work was with the White-Williams Foundation, at Philadelphia.

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The motorized child health center, known as the Child Welfare Special, recently built for the Wisconsin State Board of Health, toured Rock County in April and Grant County in May, giving physical examinations for infants and preschool children. Other counties on this year's schedule are Sheboygan, Manitowoc, Oconto, Oneida, Bayfield, Portage, Monroe and Juneau. The pediatric work is done by Dr. Blanche Horner-Rivers, formerly in similar work in Mississippi. Mrs. Johanna Clark, Fort Atkinson, Wis., is nurse assistant.

Dr. F. F. Bowman, deputy state health officer for the first district, Wisconsin State Board of Health, has been made epidemiologist in the department to succeed Dr. I. F. Thompson. Dr. G. W. Henika, formerly with the department, has returned to be deputy in the first district.

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The biennial conference of Wisconsin health officers and the annual conference of public-health nurses will be held jointly this year at Madison, the State Board of Health having set the date for August 14-18.

The Bureau of Child Welfare and Public Health Nursing of the Wisconsin State Board of Health is sending a series of nine prenatal letters monthly to expectant mothers, upon receipt of names furnished by public-health nurses.

Miss Cornelia van Kooy, state advisory nurse in the Bureau of Child Welfare and Public Health Nursing, Wisconsin, has resigned to return to her work with the Wisconsin Anti-Tuberculosis Association at Milwaukee.

Dr. Hugo C. Reich, health officer of Sheboygan, Wis., since 1904, died from heart disease early in May.

Dr. A. H. Broche, formerly health officer of Oshkosh, Wis., has been elected again to that post to succeed Dr. Bertha V. Thompson.

Dr. W. W. Johnston has been elected health commissioner of Racine, Wis., under a plan of organization of the department which diverts authority in the health administration from the chief of police to the health officer.

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The Wisconsin Industrial Commission has ruled that tuberculosis acquired as a result of occupational duty is compensable under the "Occupational Disease Amendment" enacted by the 1919 Legislature. The case was that of a "wet grinder" in a factory, who inhaled dust and fine particles until tuberculosis developed.

Mrs. Barbara Fletcher, Blue Island, Ill., has become county nurse for Grant County, Wisconsin, to succeed Miss Agnes Smith, who resigned to enter public-health work in Brazil.

Wyoming

Dr. J. F. O'Donnell, Director, Division of Venereal Diseases, resigned May 1, and will devote his entire attention to county health work, his private laboratory at Casper, Wyo., and the State Board of Health.

The Wyoming Tuberculosis Association is making plans to secure the success of a bill on state sanitaria for tuberculosis patients authorized by the Legislature of 1921.

Miss Agnes Cozon, A. R. C., collaborating with Wyoming State Board of Health, resigned May 1, 1922. Miss Cozon has been in charge of Red Cross nursing in Wyoming for the past two years.

The New War Veterans Bureau Hospital at Ft. McKinzie, Sheridan, entirely for psychiatic patients, opened to receive patients May 21.

The Francis E. Pershing Memorial Hospital, one of the most modern hospitals in the Rocky Mountain region, with 140 beds, began receiving patients May 1.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst and E. B. Starr.

Sickness Among Office Workers.—A large western corporation, during the year ending January 31, 1921, in which it employed an average of 1,282 office employees, and kept an exact record of the hours of work lost by each person from sickness or injuries, found that the annual loss was 8.15 days per person. The sickness was diagnosed by the medical department or by the family physician.

This compares with the estimate made by the committee on industrial waste of the Federated American Engineering Societies, which reported that "the 42,000,000 men and women gainfully employed in the United States probably lose on an average more than eight days each annually from illness disabilities."

The fact that the majority of the 1,282 office employees were women, whose sickness rate is usually higher than that of men, and that a loss of about two days per person was caused by influenza during the epidemic of February, 1920, are two factors which tend to make the sickness rate in question higher than the average rate for workers in a normal year. On the other hand, the fact that the average age of the office employees was only 23.7 years, that clerical and executive work is relatively free from health hazards, and that the health of the group was carefully guarded medically, would tend to make the rate in question lower than the average rate for the gainfully employed. Allowing for these factors, the author of the report concludes that the eight-day estimate of the committee of the engineering societies for all workers probably is not too high.—*Health News,* U. S. P. H. S. (K-114; CJI), April, 1922.

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Causes of Absenteeism in the Pulp Paper Mill.—In 1921 the Mead Pulp and Paper Company, Chillicothe, Ohio, found that the total lost time in the mill for various reasons averaged 8.3 days per man for the whole year, excluding vacation time. The figures are based on 144 men. The amount of wage lost was $16,000. An analysis of the causes of absenteeism showed as follows: sickness, 4.75 days; accidents, 1.16 days; personal reasons, 2.05 days; reasons unknown, .39 days; in addition each man out of the 144 received an average of 7.2 days vacation. Persons entitled to this vacation must have been in the employ of the company at least three years before becoming eligible. "Particularly under the heading of 'days lost because of accident,' did we make an exceptionally poor showing last year. Basing our statement on the fact that in another plant of this company, where the work is even more hazardous than in this plant, we find that the average number of days lost in that plant because of accidents was .45 days per man—this, too, in a plant employing 6,700 persons.

"From the above information, then, it can readily be seen that we are losing entirely too much time in our mill, for which there is no reasonable excuse. It is up to all of us individually to try and keep our absentee figure down as low as possible, thus benefiting ourselves as well as all those around us, and the company at the same time."—*Mead Co-Operation,* Feb., 1922, Vol. IV, No. 8, pp. 26-27.

✣

United States Steel and Carnegie Pension Fund.—"In the year 1910 Mr. Andrew Carnegie generously offered to donate $4,000,000 (from the Carnegie Relief Fund, which was originally created in 1901) for the purpose of establishing a fund to take care of the United States Steel Corporation's employees in their old age or when physically incapacitated for work, provided the Corporation would donate $8,000,000 for the same purpose, such allowance or pensions to be paid from the joint income of the $12,000,000 and to be handled and administered by a board of directors through a manager appointed by the board.

"Thus was created the United States Steel and Carnegie Pension Fund, an organization which has since its inception paid out gratuitously for the support and

comfort of its old and disabled employes the fabulous sum of $6,828,460.75, as per copy of the Pension Board's annual report following this article.

"Pensions may be obtained by employees of the Corporation or any other corporation controlled by the U. S. Steel Corporation, under the following conditions:

"First—Compulsory retirement.

"Second—Retirement at request of employer or employee.

"Third—Permanent incapacity.

"Compulsory retirement applies to all male employees who have been 25 years or longer in the company service and who have reached the age of 70 years, and all females who have been 25 years or longer in the service and reached the age of 60.

"Retirement at request applies to all male employees who have been 25 years or longer in the service and who have reached the age of 65, and all females who have been 25 years in the service or longer and reached the age of 55.

"Permanent incapacity applies to all employes who have served 15 years and who have been totally incapacitated through no fault of their own as a result of sickness or injury.

"Accepting a pension does not bar a man from engaging in other business, so long as such other business is not of the same character as former employment.

"No employee receiving a pension may reenter the service.

"Some 3,677 employees of the Corporation are at present enjoying the benefits of the Pension Fund, and passing the last years of their lives in comparative comfort as a result thereof." The balance of the statement concerns other specifications about pensions and the annual report for the year 1921, showing the distribution to retired employees of the various subsidiary companies of the Corporation.—*South Works Review*, Illinois Steel Co., Vol. IX, Feb.-March, 1922, p. 5.

✣

Determining Rock Dust in Air by the Sugar Tube Method.—"The determination of dust in the air of mines by the method now in use by the Bureau of Mines involves filtering a measured volume of air through a layer of granulated sugar; in the laboratory the sugar is then dissolved, filtered through close-texture paper, washed, the paper and dust ignited, and the incombustible matter weighed. A blank is subtracted for the sugar and other substances. The remainder represents the dust. The number of dust particles is also determined by counting those in a small volume of the sugar solution under a microscope."

This paper of 40 pages, including diagrams, plates and tables, concludes in brief as follows: Tests by the method of weighing silica dust before and after producing clouds and passing them through (sugar) filters, then of recovering and weighing the dust particles of sugar, show efficiency of dust recovery ranging from about 70 to 95 per cent. Wetting the sugar greatly increased the efficiency of the filter. Tested with tobacco smoke, sugars of different sizes show an increased filtering efficiency with increasing fineness, so that pulverized sugar of 48 to 150 mesh gives over 90 per cent efficiency. The air to be tested was passed through the filter for periods of time varying from one-half to 20 minutes.—Tech. Paper 278, *U. S. Bur. of Mines*, Dec., 1921.

✣

Carbon Monoxide Poisoning.—This Bulletin of 47 pages gives a description of acute poisoning as stated in American and foreign literature, including after-effects, relapsing form, unusual symptoms, effect on child of the gassing of mother, and individual susceptibility. Then follows a description of chronic poisoning as given in American and foreign literature. Two pages are given to other constituents of industrial gases (carbon dioxide, nitrogen, hydrogen, benzol, toluol, sulphurated hydrogen, hydrocyanic acid and etheylene). The usual sources of carbon monoxide gas are given as: manufacture of steel, coal and metal mining, illuminating gas, smelting and coke by-products, garage workers, linotypers and certain unusual cases, such as that described by Harris in a clothing manufacturing establishment where workers were overcome by gases from chimneys down the hallways from the roof, and as described by Albaugh in a bunk-house at a construction camp in the midst of winter, when gas from smouldering cinders on which the bunk-house had been erected, but to which no cinders had been added for many months caused several fatal cases at different times. The sur-

face of the cinder dump was frozen over except under the building, thus permitting all the accumulated fumes to pass up into the building. Other similar unusual instances are also cited.—Alice Hamilton, Bull. 291, *U. S. Bur. of Labor Statistics,* Dec., 1921.

✣

Neon, a Rare Element, Appears as an Important Factor in Reducing Certain Health and Accident Hazards.—"Neon is one of the rare gases of the air and was discovered in 1898 by Sir William Ramsey. No practical use of it was made until about a year ago, when a New York concern produced an incandescent lamp without filaments—using neon in place of wire, inasmuch as neon becomes luminous when electrified, and emits an orange-red glow.

"Neon lamps are used for exit lights in buildings and are said to be particularly visible through fog or smoke.

"In the spark-detecting instrument neon is useful because it offers exceedingly low resistance to the passage of electricity. A spark that will jump only one inch in air will jump approximately 75 inches in neon.

"It also has been used in combination with mercury to produce a powerful white light instead of the unpleasant greenish-blue light thrown off by mercury lamps now in general use. The orange-red color produced by neon is said to combine satisfactorily with blue glow from the mercury vapor in building up a white light.

"There are five rare gases which comprise about 1.86 per cent of the air. They are helium, argon, krypton, neon and xenon. Argon has recently been made use of as a 'filling' for incandescent lamps, because of its low heat-conducting property. Helium is now widely known as the most successful non-inflammable balloon gas ever discovered. Uses for krypton and xenon are still to be developed.—The *General Chemical Bulletin,* Vol. VIII, No. 5, March, 1922, p. 143.

✣

A Year's Atmospheric Pollution.—The seventh report of the Committee for the Investigation of Atmospheric Pollution covers the year ending March 31, 1921, when 31 stations were in operation (England) for measuring deposited impurity from the air. The amounts range from about 60 English tons per square mile down to 10 tons. London occupied an intermediate position with from 30 to 35 tons. The deposit was less than in the previous winter in 19 cases, and greater in 4. On the other hand, there was a fairly general increase—chiefly of tarry matter—in the summer deposit. The tests further show that London air is purest between midnight and 6 A. M. On week days a rapid increase in the amount of impurity takes place after 6 A. M. and on Sundays after 7 A. M. This continues till the maximum for the day is reached at about 10 A. M. The maximum seldom lasts for more than an hour, when it falls off rapidly, to be followed by a second, but lower, maximum about 4-5 P. M. The amount of impurity bears a close relationship to human activities. Even the peak between 4 and 5 P. M. may be a tea-time rise. The report confirms the view that urban air pollution is due to unburned fuel from many sources and that a campaign for pure air must be a comprehensive one.—*Lancet* (London), April 1, 1922, Vol. CCII, p. 649.

✣

Efficiency in Silk Weaving.—"Mr. Elton holds that the observations already made have at least established that good silk weavers (1) possess good eyesight, (2) are observant, (3) are dexterous with both hands, (4) have a delicate sense of touch, and (5) can stand for long periods. Clearly, a girl who has not these qualities should not waste time in learning weaving, and an employer should not incur expenditure in training such a person. The advantages to industrial contentment and well-being, and to profits, from extension of work on these lines is obvious."—*Lancet* (London), April 1, 1922, Vol. CCII, p. 652.

✣

The National Institute of Industrial Psychology (Great Britain).—The report of a year's work is here summarized. The Institute was incorporated in February of last year. An institute on similar lines was started in New York, upon the council of which were many of the leading scientists of America and the President of Yale University.

"The object of the National Institute of Industrial Psychology was to assist employers to find the best way to do any particular piece of work, and to find the best

man to do it, while an appeal was made to all classes, for the employer would benefit by an increased output and the worker would gain higher wages and more leisure. The work would also help to strike directly at some of the root causes of illness, poverty, unhappiness and crime, and therefore should receive the support of the socialist and the philanthropist.

"Dr. Myers said that the work already done had earned the gratitude of both employers and employed. Tests had been devised for all classes of workers and the application of these tests facilitated the selection of candidates. The methods had been extensively employed in the United States, and instruction and research in industrial psychology were carried on in most of the American universities. In Germany there were many laboratories concerned in industrial psychology at such places as Berlin, Frankfurt, Munich and Leipzig, and he instanced the fact that as a result of this kind of research the big Berlin Tramway Company had saved during one year no less than 12 million marks. Germany, he said, hoped to secure the lead in commerce and industry by paying attention to the human aspect of the workers, just as in previous days she advanced by paying attention to the material aspect.

"Lord Haldane expressed the opinion that unrest prevalent in this and other countries, which arose out of the relations between capital and labor, could be enormously reduced if the methods and principles advocated by the Institute were put into practice. Many of our troubles, said Lord Haldane, were due to want of knowledge and not to lack of desire to do right. He instanced how the scandal of the concentration camps in the South African war was ended as soon as the physiologist had shown that the food of the women and children, though generous, was physiologically unsuitable, and how, while he was at the War Office, the physiologists had shown the unsuitability of the food on which soldiers were then forced to march. It was neither capital nor labor that created work, he continued, but mind, and therefore the more that mind was developed the more progress would be made. The worker was keenly interested in getting more leisure for educational improvement, and the work of the Institute would in a great measure relieve labor from the feeling that men and women were only machines; making the worker comfortable would cause him to give his output willingly. Lord Haldane believed that we were on the eve of recognizing generally that the human being was not a machine, but a living organism, and he hazarded the opinion that within 20 years a psychological expert would be at the elbow of every manager of every great concern to aid him in increasing the efficiency of his business, promoting at the same time the happiness, health and comfort of the worker. The following resolution was passed unanimously:

"'In view of the present serious economic situation and of the necessity to reduce costs of production and to increase the total national output, this meeting is of the opinion that (a) a more complete and scientific development of the nation's human resources and a reduction of wasteful and misapplied energy are matters of urgent national importance; (b) the methods adopted by the National Institute of Industrial Psychology have been shown to reduce costs of production, to promote the development of individual ability, to eliminate unnecessary effort and fatigue, and to improve the health and well-being of the worker; (c) it is imperative that a national fund should be immediately established to enable the Institute to extend its sphere of usefulness and to continue the necessary researches into the scientific problems involved.'" — *Lancet* (London), April 1, 1922, Vol. CCII, p. 673.

✠

Changes in the Reaction of the Blood During Anaphylactic Shock.—There is a diminished alkalinity of the blood during anaphylactic shock, apparently in proportion with the severity of the symptoms. This change in reaction may become so great as to be incompatible with life. The altered reaction of the blood is accompanied by a roughly proportional lowering of the alkali reserve. Slight changes (usually an increase) in the concentration of the sugar of the blood occur in anaphylactic shock, but not to the degree observed in prolonged acidosis.—Edwin F. Hirsch and J. Lisle Williams, *Jour. Inf. Dis.* 30, 259, (1922).

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Demonstration of Lepra Bacilli by Aspiration of Nodules.—Characteristic lepra bacilli may be demonstrated in smears by acupuncture of lesions, a method which is simple, virtually painless, and easy to carry out in timid and apprehensive patients. The technic consists in the use of a syringe with tightly fitting plunger, a small record syringe by preference, a short pointed needle of average gage, and a few drops of salt solution or distilled water. The node is first gently massaged in order to bring as much fluid into it as possible. The needle is then introduced, after careful cleansing of the cutaneous surface, and the salt solution or distilled water slowly injected and withdrawn several times, thus making a sort of emulsion of the tissue about the needle point. The needle and its contents are then withdrawn, and smears are made from the fluid.—S. S. Greenbaum, and Jay F. Schamberg, *Jour. A. M. A.* 78, 1295 (1922).

✣

Bacteriology of Normal Infants' Urine.—The authors found the urine of seventy infants sterile on culture in from one-third to one-half of the experiments. Streptococcus lacticus was only exceptionally found in the urine. It is stated that the chances of contamination are so great that the presence of organisms in the urine does not prove, without further control, that they have come from the kidney.—H. F. Helmholz and F. Millikin, *Am. Jour. Dis. Children,* 23, 309 (1922); *Jour. A. M. A.* 78, 1227 (1922).

✣

Standardization of Hemoglobinometer Findings.—The author remarks that in no other point of clinical medicine is there so much confusion in terms as in the estimation of the hemoglobin in the blood. It is expressed by a percentage of the normal, but there is no uniformity in the estimation of the normal. The sexes vary by 10 per cent. Colorimeters can be standardized by taking the average of a large number of healthy persons, or by comparing with a certain standard instrument, but the best method is to ascertain the iron content of the hemoglobin, its absorption of light in the spectrophotometer, and its capacity for taking up oxygen. The latter seems to be most promising, especially by van Slyke's technic. The ferricyanide method gives too low values. An oxygen capacity of 18.5 per cent can be regarded as corresponding to 100 per cent hemoglobin and about 5 millions of normal erythrocytes, which gives the color index as 1 and the cell volume as 43 per cent.—H. C. Gram, *Ugeskrift for Laeger,* Copenhagen, 84, 215 (1922); *Jour. A. M. A.* 78, 1242 (1922).

✣

Differences between Bence-Jones Proteins from Various Sources.—Twelve preparations of Bence-Jones protein obtained by various procedures from the urines of 5 patients, who had Bence-Jones proteinuria associated with several different diseases were compared immunologically. Precipitin and complement fixation tests and anaphylactic reactions were studied with these preparations and the antisera obtained by immunizing rabbits to some of them. Under the term "Bence-Jones protein" have been grouped a number of proteins which are similar but not identical. Certainly two, and possibly three groups of Bence-Jones proteins are recognizable by immunological tests.—S. Bayne-Jones and D. Wright Wilson, *Bull. Johns Hopkins Hosp.,* 33, 119, (1922).

✣

A Suggested Modification of the Wright Opsonic Technique.—The Wright opsonic index is not a reliable measure of an animal's phagocytic capacity whenever the white blood count is above or below the normal. The *differential opsonic* index seems generally to be a more dependable measure of phagocytic defense than the Wright opsonic index. Depression in phagocytic activity is not an invariable phenomenon associated with fatal infections. With the possible exception of cases with leucopenia, the relative phagocytic power of an infected animal is never lower than the opsonic index indicates, but is sometimes, indeed quite

often, very much higher. The opsonic index, with the exception noted above, never does more than express the minimal limitations of the animal's phagocytic defense.—Howard B. Cross, *Bull. Johns Hopkins Hosp.*, 33, 142, (1922).

✣

Bacterial Nutrition Study.—A hemophilic bacillus has been found which requires the addition of only an autoclave-stable substance as a growth accessory factor.—T. M. Rivers, *Bull. Johns Hopkins Hosp.*, 33, 149, (1922).

✣

Determination of Specific Gravities of Minimal Amounts of Liquid.—The apparatus described permits the rapid and accurate determination of as little as one drop of body fluids. It is based upon the mixture-metric principle. A special hydrometer is required to obtain the reading. The method has been in use for some time in the laboratory of the Prudential Insurance Company. The article is accompanied by a number of illustrations.—William G. Exton, *Trans. Am. Urol. Assoc.*, Vol. XII (1920).

✣

B. Lactimorbi in the Throats of Cats.—The occurrence of B. lactimorbi in the throat of cats is described and the danger of this bacillus being mistaken for B. diphtheriæ is emphasized.—Roger G. Perkins and James K. Shen, *Jour. Inf. Dis.* 30, 505 (1922).

✣

An Epizootic Among Guinea Pigs due to a Parathyphoid B. Bacillus.—An infectious disease which developed among the laboratory guinea pigs during the summer of 1920 was characterized by the occurrence of multiple tubercle-like lesions of the spleen and liver. The disease was of the type to which the name pseudotuberculosis has been applied. The infection quickly assumed epizootic proportions and led to the deaths of more than 500 animals before it was brought under control. At the height of the epizootic many of the guinea pigs died without typical lesions but with positive blood cultures. Females were much more susceptible to spontaneous infection than males, and pregnant females were especially susceptible. In pregnant animals purulent metritis was not infrequent. From the infected animals there was isolated a Gram negative, motile bacillus which had the cultural characteristics of the colon-typhoid intermediate group. It fermented xylose, arabinose and dulcitol readily, quickly formed alkali in milk, and darkened lead acetate agar within 24 hours. The bacillus was isolated, usually in pure culture, from the lesions and from the heart blood. The strain was virulent on artificial inoculation for guinea-pigs, rabbits, white mice and white rats. The epizootic was apparently brought under control by immunization of the guinea-pig stock with a killed polyvalent suspension of the organism.—K. M. Howell and O. T. Schultz, *Jour. Inf. Dis.*, 30, 516 (1922).

✣

The Action of Neoarsphenamin and Neosalvarsan on the Phagocytic Activity of Leukocytes.—In proper concentrations neoarsphenamin and neosalvarsan may increase the phagocytic activity of leukocytes both in vitro and vivo. In vivo the stimulating effect is rapid and of short duration, occurring as a rule within 30 minutes after intravenous injection. Further study is necessary to determine what part, if any, this stimulus of the phagocytic activity of the leukocytes plays in the curative action of the neoarsphenamin and allied products.—Ruth Tunnicliff, *Jour. Inf. Dis.*, 30, 545 (1922).

✣

A Comparison of Several Clinical Quantitative Blood Sugar Methods.—In interpreting the blood sugar findings obtained in any laboratory, it is of the utmost importance to the clinician that he be advised of the method employed in the laboratory in question, and also of the range of normal figures for the method as actually determined in the laboratory. The choice of a blood sugar method may be considered a matter of individual preference, provided the foregoing precautions are taken in interpreting the figures obtained. However, the authors believe that there is some evidence to indicate that, in some bloods containing a high percentage of sugar, the Benedict modification of the method of Lewis and Benedict does not yield results as reliable as the other methods discussed in this article. The Benedict and the Myers and Bailey modifications of the method of Lewis and Benedict, as well as the latest modification of the method of Folin and Wu, have impressed the authors as being on practically an equal footing as regards simplicity of technic.—William

Thalhimer and Helen Updegraff, *Jour. A. M. A.* 78, 1383 (1922).

✣

Collodion Sacs for Aerobic and Anærobic Bacterial Cultivation.—A simple and convenient method is described for the preparation and use of collodion sacs for ærobic and anærobic bacterial cultivation in vitro. The sacs are suitable for the study of various problems in bacterial growth and metabolism. By their use with the Smith-Noguchi tissue medium, certain microörganisms may be grown in the absence of the confusing antigenic protein precipitate characteristic of cultures containing fresh tissue, and thus the organisms are obtained in a suitable condition for serological study.—F. L. Gates, *J. Exp. Med.* 35, 635 (1922).

✣

Micro Gas Analysis of Bacterial Cultures.—During a study of anærobic bacteria the author made use of small amounts of media covered by vaseline in test tubes. It was noticed that as gas was formed by a culture the vaseline was forced up the tube, the vaseline plug remaining perfectly intact and acting as a self-lubricating piston at the temperature of the room or incubator. By means of a Luer tuberculine syringe with a long fine needle attached by means of a short length of capillary rubber tubing, a sample of gas may be withdrawn and the carbon dioxide determined in the syringe. The data presented serve to illustrate the accuracy and technical possibilities of the method.—J. Howard Brown, *J. Exp. Med.* 35, 667 (1922).

✣

Effect of Bile at Varying Hydrogen Ion Concentrations on Dissolution of Pneumococci.—Dissolution of pneumococci takes place most rapidly in bile at a slightly alkaline reaction. This is probably due to death of the organisms and activation of the endocellular enzyme at its optimum hydrogen ion concentration.—F. T. Lord and R. N. Nye, *J. Exp. Med.* 35, 703 (1922).

✣

Sterilization of Surgical Instruments.—No growth was obtained when either glass rods or scalpels, on which nonspore-forming organisms were present, were burned off with methyl alcohol. Glass rods and scalpels could not be sterilized by burning them off with methyl alcohol when spores of B. anthracis, B. cereus, B. botulinus, B. tetani, etc., were present. The burning off of glass rods and scalpels with a methyl alcohol-formalin mixture (3 to 1) gave excellent results except in the case of the anærobes when grease and oil were present. When absolute sterility is desired, the burning off of a surface with an inflammable fluid cannot always be relied upon.—E. S. Sanderson, *J. Lab. Clin. Med.* 7, 360 (1922).

✣

Effect of Time Element on Cell Counts in Spinal Fluid.—The cells in clear spinal fluids, collected in clean tubes and tightly stoppered, may in the absence of a macroscopic pellicle, sediment or web be safely counted if thoroughly mixed at any time up to at least 15 hours. If the spinal fluid is not clear or becomes cloudy, the results of counts at different times are apt to vary. It is desirable but not necessary for fluids to be collected in sterile tubes. Whether the fluids are kept at room temperature or in the ice box seems to be of little consequence.—James Wynn, *J. Lab. Clin. Med.* 7, 273 (1922).

✣

Wassermann Reaction in Tuberculosis.—The serum of seventy patients suffering from tuberculosis was examined by the author by the Wassermann test with the object of finding out if this disease was responsible for a positive reaction. Forty were cases of pulmonary tuberculosis, fourteen were cases of tuberculosis of the lymphatic glands, and sixteen were cases of abdominal tuberculosis. Fourteen out of these seventy cases gave a positive Wassermann reaction, eight of the pulmonary group; three each of the glandular and abdominal group.—K. R. K. Iyengar, *Indian J. Med. Research*, 9, 369 (1921); *Jour. A. M. A.*, 78, 1493 (1922).

✣

Suspension Stability of the Erythrocytes in the Tuberculous.—The author relates experiences with citrated blood which confirm that the speed of sedimentation of the erythrocytes is a sensitive and reliable index of the destruction of tissue that is going on. Hence it is a valuable aid in pulmonary tuberculosis as negative findings exclude an active process, and the modification of positive findings shows the trend up or down. With non-tuberculous affections of lungs and pleura the return to normal confirms the

absence of a tuberculous process. The reaction depends mainly on the amount of fibrinogen in the blood, and the test should be repeated at ten or fourteen day intervals to estimate the progress of the case. He gages the reaction by the depth of the column of plasma in a set of eight vertical pipets filled with the citrated blood, as he describes. The pipets are 30 cm. long, with a diameter of 2.5 mm. and they are graduated from the top down to the tip, 0 to 200 mm. Four parts of the 3.8 per cent solution of sodium citrate are mixed with sixteen parts of blood, and set aside in a test tube for four or five hours. Charts are given of a number of cases. Of course the sedimentation reaction is not specific for tuberculosis any more than the temperature or the pulse, but it gives a better idea of the actual condition than the tuberculin test, as the latter may be positive with an inactive focus. —G. Katz, *Zeitschrift Tuberkulose*, 35, 401 (1922); *Jour. A. M. A.* 78, 1502 (1922).

✣

The Use of Original Culture for Virulence Tests.—The original diagnostic culture can be used advantageously for the diphtheria bacillus virulence test by the intracutaneous method. The method eliminates the necessity of isolating pure cultures and makes it possible to test any desired number of cultures. The results obtained by this method check with those obtained by the pure culture method, and moreover, it is possible to determine the virulence of cultures when pure cultures cannot be isolated.—Leon C. Havens and Horace M. Powell, *Am. J. Hyg.* 2, 234 (1922).

✣

Complement Fixation in Tuberculous Infections.—The authors are not satisfied that complement fixation tests afford a reliable means of clinical diagnosis in tuberculous affections. Too little attention has been paid to so-called nonspecific reactions and it is possible that some of the results obtained are fallacious.—Arthur Sellers and E. N. Ramsbottom, *J. Path. Bact.* 25, 247 (1922).

✣

Bottled Mineral Waters of Unusual Composition.—The composition of the domestic and foreign bottled mineral waters examined in the Water and Beverage Laboratory of the Bureau of Chemistry during the last fifteen years is discussed with particular reference to the presence of unusual constituents or of ordinary constituents present in unusual amounts. The majority of these waters belong to one or another of the three following types: first, those in which the dissolved mineral constituents consist chiefly of dissolved limestone or of dolomitic limestone; second, of sodium bicarbonate and sodium chloride; third, of either or both sodium sulphate and magnesium sulphate. Usually a determination of the acid radicals, namely, nitrate, chloride, sulphate, carbonate and bicarbonate and of the basic radicals, iron, aluminum, calcium and magnesium, together with a calculation of the sodium by difference, will furnish sufficient knowledge as to the composition of a water, provided qualitative tests are made for the more unusual constituents. Ordinarily, constituents other than those mentioned, and silica are present only in traces. There have been some exceptions to the above, and instead of traces only, substantial amounts of certain constituents enumerated below were found. The following maximum amounts of constituents expressed in milligrams per liter are reported: Nitrate 5700.; nitrite 10.; hydrogen sulphide 496.; bromide 1510.; iodide 30.; fluoride 0.4; phosphate 32950.; borate 2000.; saline ammonia 69.; lithium artificial water 288.; natural water 32.; strontium 200.; barium 18.; manganese 50.; and arsenic 15. The composition of the so-called iron and alum waters is discussed briefly.—W. W. Skinner, C. H. Badger and J. W. Sale, Water and Beverage Laboratory, Bureau of Chemistry.

✣

Sugar in Blood Corpuscles.—The author asserts that in blood in its natural condition the blood corpuscles are nearly, if not entirely, free from sugar. In diabetes, the corpuscles are permeable for sugar.—L. Csaki, *Wien. Arch. inn. Med.* 3, 459, (1922); *Jour. A. M. A.* 78, 770, (1922).

CONVENTIONS, CONFERENCES AND MEETINGS

This calendar is published through the cöoperation of the National Health Council, 370 Seventh Ave., New York City. The Council will be glad to answer promptly any written or telegraphic inquiries regarding meeting dates in order to avoid conflicts.

June 21, National Conference of Jewish Social Service, Providence, R. I.

June 22-29, National Conference of Social Work, New Biltmore, Providence, R. I.

June 22-24, American Association for the Advancement of Science, summer meeting, Salt Lake City, Utah.

June 24, Eugenics Research Association, Eugenics Record office, Cold Spring Harbor, L. I.

Biennial Congress on Nursing:

June 26-30, American Nurses's Association, Seattle, Wash.

June 26-30, National League for Nursing Education, Seattle, Wash.

June 26-31, National Organization for Public Health Nursing, Seattle, Wash.

June 27, National Conference on Child Labor, Providence, R. I.

June 27-29, Annual Conference, State Sanitary Officers and Public Health Nurses, Saratoga, N. Y.

June 26-July 1, U. S. Bureau of Education and Child Health Organization, Lake Mohonk, N. Y.

July 4-10, National Education Association, Hotel Plaza, Boston, Mass.

July 4, Association Medical Health Officers of Nova Scotia, Sydney, N. S.

July 17-21, National Dental Association, Ambassador Hotel, Los Angeles.

August 22-25, National Medical Association, Washington, D. C.

August 28-Sept. 2, National Safety Congress, Detroit, Mich.

Oct. 16-19, Fifty-First Annual Meeting, A. P. H. A., Hotel Statler, Cleveland, Ohio.

Foreign Meetings:

June 24-28, First International Conference of Open Air Schools, Paris.

July 6-8, League to Combat Infant Mortality (International Congress), Paris.

July 11-13, International Union Against Tuberculosis, Brussels.

July 21-28, British Association, Section on Public Health, Glasgow.

August 17-Sept. 5, Third Pan-American Congress on Infant Welfare, Rio de Janeiro.

School of Hygiene and Public Health of The University of Pennsylvania

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A revision of this indispensable manual will be presented at the Cleveland meeting next October. If approved, a new edition will be published by January 1, 1923. A more definite announcement will be published later in the year.

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THE RELATION OF CONTAMINATED RATIONS TO THE PRESENCE OF C. BOTULINUM IN THE MILK OF LACTATING ANIMALS

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Read before the Joint Session of the Food and Drugs, Public Health Administration and Laboratory Sections of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 17, 1921

THE communicability of botulism direct from the animal host, independent of the possible rôle of insects, can be excluded unless edible substances containing toxin are ingested. Direct, though delayed transmission, as remote as it may seem, is not completely eliminated in view of the presence of viable C. botulinum spores or spores and toxin in the tissues of affected animals at death, while the presence of the spore in the intestinal tract of apparently healthy animals (fecal carriers) constitutes a source of danger generally unrecognized. Animals consuming contaminated rations (C. botulinum and toxin) under experimental conditions may eliminate the spores in the feces, which possibly gain entrance directly or indirectly to the muscle and other edible substances of the host via the blood and lymph at the time the animals are slaughtered, or as a fecal contamination in the handling of the carcass. Cooking animal food products at the proper temperature renders the toxin inert, yet the possible danger following ingestion of an unsterilized animal product, such as milk, has received little attention is so far as botulinus intoxication is concerned.

This problem may be discussed concretely from the standpoint of milk, since C. botulinum may under experimental conditions be present in milk as a fecal contaminant, or as the result of an artificial teat canal infection of the udder. These facts are worthy of scrutiny, as cheese has already been incriminated in human botulism; while a fecal contamination of milk constitutes a potential danger, which cannot be disregarded, in any improperly cooked food prepared from milk which is allowed to stand for an interval before being consumed. Moreover, freshly drawn milk from artificially infected udders is, under certain conditions, lethal to guinea pigs. The elaboration of toxin in the animal udder tissue or mammary secretion, however, could not be established.*

*Fatality in guinea-pigs has since been noted by Thom, Edmondson, Giltner and Orr. *Jour. of Am. Med. Assoc.*, Sept. 20, 1918. p. 907; *Jour of Infec. Diseases*, Jan. 1922, p. 118, following the injection of spores, the possibility of infection is not entirely eliminated.

The danger of human botulism from home and commercially canned fruits and vegetables has stimulated investigations in recent years concerning the thermal death point of the spores of C. botulinum, and as a result definite standards of temperature sterilization have been established. However, the destruction by heat of the toxin or spores of C. botulinum in milk or milk products, or other uncooked food derived from animals, has not been practiced, nor have sporadic cases of botulism, with possibly few exceptions, suggested the advisability of such measures with reference to the milk supply. The possible rôle of milk-producing animals as a distributor of C. botulinum spores and toxin was suggested in preliminary studies of animal botulism in 1915. It was then observed that certain milk-producing animals, particularly cattle, consumed with impunity rations that were lethal to other more susceptible animal species. The possible direct or indirect communicability of botulinus intoxication to man through the milk of lactating animals has been mildly suggested in the sporadic fatalities in nursing young animals. Mature cattle and pigs are relatively resistant to botulinus toxins though the nursing young are susceptible to artificial exposure by feeding.

THE RELATION OF C. BOTULINUM (AND TOXIN) IN THE FEED OF LACTATING ANIMALS (CATTLE AND SWINE) TO THE PRESENCE OF THE VIRUS IN THE MAMMARY SECRETION

It is a well-known fact that milk, like other secretions of the animal body, may contain a variety of substances which are adventitious or casual constituents of the ration. Not only can milk acquire a peculiar and unpleasant flavor from some species of vegetation, but certain drugs administered by the mouth may be eliminated via the glandular secretion of the lactating animal.

Extraneous pathogens may gain entrance to the milk via the teat canal from unclean utensils or pass into the mammary secretion as a result of a local infection of the udder.

It is scarcely necessary to mention that the consumption of milk and milk products has been associated from time to time with certain ill-defined enteric and nervous manifestations in man. An experience occurring in 1914 may be mentioned in this connection. A group of 150 persons, representing the patrons of a dairy, were simultaneously afflicted. The symptoms included vomiting, diarrhea, sweating, marked prostration, difficulty in swallowing, and pains in the epigastrium. Convalescence was uneventful, although prolonged in some cases. One c.c. of the milk from the above dairy produced death in guinea-pigs. The aërobic flora of the heart's blood and internal organs of the guinea-pig proved sterile to the usual cultural methods, and repeated efforts to isolate B. enteritidis failed. Anaërobic microorganismns, if any, in the milk or in the tissues of guinea-pigs destroyed by the injection of the milk were not studied, for the reason that the relation of the syndrome described to botulism was not suspected. A similar acute illness was observed by one of the writers* in a group of soldiers in 1918, supposedly resulting from eating ice cream, though evidence could not be obtained to definitely incriminate the ice cream.

In order to obtain experimental evidence relative to the presence of the spores of C. botulinum and its toxin in the milk secretion of lactating animals, healthy cows and sows were fed definite amounts of toxin containing spores and vegetative cells, for varying periods of time. The effect upon the animal and the offspring consuming the milk, together with daily bacteriologic findings in the milk, and its effect on guinea-pigs following subcutaneous injection were noted in the following exposure tests:

FEEDING EXPOSURE TEST I

A healthy experimental lactating cow (1650) was fed daily 40 c.c. of unfiltered

*Graham.

broth culture of C. botulinum, type A (854), for a period of thirty consecutive days to note the relation, if any, of the presence of C. botulinum spores and toxin in the food of lactating animals to the presence of spores or free toxin in the mammary secretion. The calves (1650 A and 1650 B) were allowed to nurse the cow (1650) ad libitum through the experiment. The rectal temperatures of the cow and calves were recorded for ten consecutive days preceding the feeding of toxin, and each day during the test. The milk was drawn daily in sterile containers and ½ c.c. of the milk was injected subcutaneously into guinea-pigs. Each sample of milk was also cultured for spore-bearing anaerobes. Duplicate seedings of the milk were made, only one being attenuated sufficiently to destroy vegetative bacteria. The milk cultures were then incubated for ten days and tested for toxicity. This procedure was employed daily during ten days preceding the feeding of toxin and spores to the cow as well as during the thirty-day exposure period. At intervals the feces of the cow were examined for C. botulinum.

C. botulinum, type A, was not present in the milk during the preliminary ten-day period but on the sixth, seventeenth, and twentieth days it was demonstrated by cultural methods. Free toxin could not be demonstrated in the milk on any day. A few days following the conclusion of the test, as a result of subcutaneous injections of the toxin, the cow died of chronic botulism. The internal organs proved positive to C. botulinum, as had the feces at intervals during the test. The calves nursing the cow developed unthrift, but their condition was not definitely attributed to a chronic botulinus intoxication, though this possibility is not entirely eliminated.

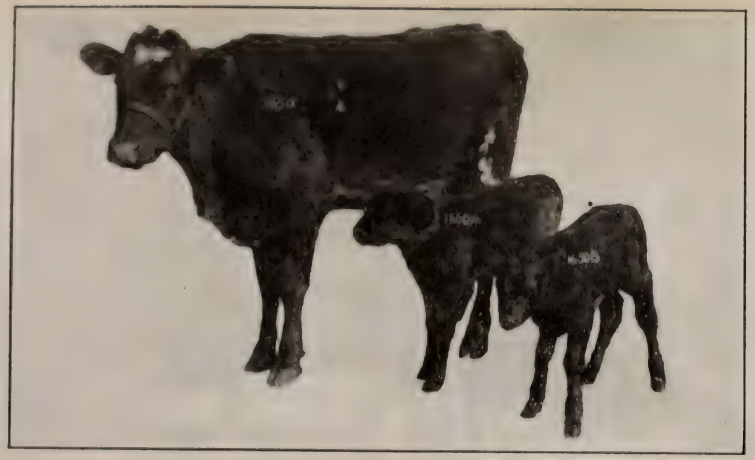
The presence of C. botulinum in the milk on only three days during the time the cow was exposed by feeding, suggested an external udder or fecal contamination of the milk rather than a local mammary infection via the blood and lymph stream.

FEEDING EXPOSURE TEST II

Lactating cow 1745 was fed each day 80 c.c. of unfiltered broth culture of C. botulinum, type A (854), disguised in wholesome feed. Calves 1745A and 1745B were allowed to nurse ad libitum. As in the first test, a preliminary observation period of ten days preceded the thirty-day feeding period. Each day the udder was carefully washed with a 1/1000 solution of bichloride of mercury and dried with sterile gauze immediately before the sample of milk was collected for seeding and injection into guinea-pigs. Throughout the exposure period the feces of this cow were heavily contaminated with C. botulinum, type A, as determined by cultural methods, yet during the thirty consecutive days the virus was fed, the milk proved culturally negative to the spores of C. botulinum while free toxin in the milk could not be demonstrated. The calves remained apparently healthy, though the cow lost in weight.

FEEDING EXPOSURE TEST III

Lactating cow 1824 and calf 1824A were fed 160 c.c. of unfiltered broth culture of C. botulinum, type A (854), for thirty consecutive days. The udder was carefully cleansed with 1/1000 bichloride of mercury and dried with sterile gauze before the milk was drawn each day. No ill effect was observed in either the cow or the calf during the thirty-day feeding period. The milk also proved negative to C. botulinum as determined by cultural methods. Guinea pigs receiving subcutaneously ½ c.c.—1 c.c. of the milk each day remained healthy, with the exception of the pig injected on the sixth day. This pig developed symptoms indistinguishable from a chronic botulinus intoxication and died seven days later. The internal organs proved positive to C. botulinum, type A. Following the injection of the milk into a guinea-pig on the 27th



TEST 1



TEST 3



TEST 4



TEST 5



TEST 2

day death occurred in two hours. A duplicate sample of the unfiltered milk and also a sterile filtered sample of the milk serum obtained the same day were injected into guinea-pigs with negative results.

FEEDING EXPOSURE TEST IV

Lactating sow 1942 with two nursing young was fed each day for ten consecutive days, 100 c.c. of unfiltered botulinus toxin, type A (364),** disguised in wholesome feed. The udder was washed before the milk sample was drawn. Notwithstanding precautionary measures, the time involved in securing the milk exposed each sample unduly. On the fourth and last days of a ten-day feeding period, the milk contained the spores of C. botulinum, type A. No ill effect was noted in the guinea-pigs injected with daily milk samples. The deductions on the nursing offspring are withheld pending further observation.

FEEDING EXPOSURE TEST V

The preceding test was repeated with sow 1938 and four nursing young. No ill effect in nursing young was observed. The daily milk samples proved positive to C. botulinum, type A, on the first, third, fifth and sixth days. The positive findings in the milk samples so far as could be determined were related to an external udder and pen contamination. Guinea pigs receiving subcutaneous injections of the fresh milk remained healthy.

THE RELATION OF AN ARTIFICIAL C. BOTULINUM SPORE INFECTION OF THE TEAT CANAL TO THE MAMMARY SECRETION

The bacteriologic findings of the milk in the foregoing experiments failed to explain under what circumstances, if at all, nursing young (calves and pigs) from healthy dams might succumb to a specific botulinus intoxication. However, the prevalence of C. botulinum in the feces of the experimental animals, as well as in the soil of certain feed lots, suggested the possibility of an external udder or fecal contamination, or that the teat canal or mammary gland might become infected. Experimentally the effect of same could not be demonstrated more accurately than by establishing an artificial infection of the udder, followed by a daily bacterio-

**C. botulinum, type A (364), was isolated from oats that produced spontaneous death in nursing pigs when fed to the dam.

logic and toxicogenic study of the milk secretion.

ARTIFICIAL INFECTION OF POSTERIOR QUARTERS OF UDDER OF COW 1745

Seventy-five million C. botulinum spores and vegetative cells washed free of toxin and heated to 80° C. for fifteen minutes were injected with aseptic precaution into the posterior quarter of the udder of cow 1745. The results of injecting guinea-pigs with ½ c.c. of the whole milk as drawn from the infected quarters of the udder for thirty consecutive days were noted. On the first sixteen days inclusive, with the exception of the third, thirteenth, and fifteenth days, C. botulinum was encountered in the milk of this animal by cultural methods. The milk samples on the twenty-third, twenty-fourth, and twenty-fifth days also proved positive. The frequency of positive findings in the milk of the artificially infected udder suggested that the spore could survive at least twenty-five days in the mammary gland. Subsequent evidence on this point indicates that infection artificially established may remain a much longer time. Guinea-pigs, injected with ½ c.c.—1 c.c. of the whole milk on the first, second and twenty-fifth days, respectively, developed typical and fatal symptoms of botulism. The period elapsing from the day of injection until death occurred, involved from eight to eleven days. A retrogressive attitude, followed by emaciation, was observed in the guinea-pigs two or three days after the injection of the milk. The possibility of an intramammary toxin production was thus suggested in view of the fact that toxin-free spores fail to produce ill effects following ingestion or subcutaneous injection.

Calves 1745A and 1745B were allowed to nurse from the infected as well as from the healthy quarters of the udder of this animal for twenty-three days. At this time the anterior quarters were injected with the same inoculum as had been used in the posterior quarters. For thirty consecutive days the milk of the anterior quarters was cultured daily. An unfiltered and a filtered sample of milk serum (½ c.c—2 c.c) were injected subcutaneously into guinea pigs. The sample before being filtered was centrifugalized to remove the fat globules. On the second, fourth, and fifth days, the injection of the whole milk produced symptoms in guinea-pigs indistinguishable from chronic botulism, while the milk filtrate on the second day produced a similar syndrome. The presence of the spores of C. botulinum in milk from the anterior infected quarters was demonstrated on the first, second, third, fourth, fifth, sixth, eighth, ninth, thirteenth, sixteenth, twenty-sixth, and thirtieth days.

The preliminary findings suggest the possibility of intramammary production of minimum amounts of botulinus toxin as the result of an artificial spore infection of the udder. Furthermore, the toxicity of the milk, as shown by the illness induced in the calves, is very suggestive.† These animals (calves 1745A—1745B) became emaciated and showed marked signs of malnutrition, notwithstanding the fact that the quantity of milk was more than sufficient to sustain them. Calf 1745A succumbed on June 12, while calf 1745B succumbed on July 11. The bacteriologic findings confirmed the diagnosis of a chronic botulinus intoxication. Though these animals were subjected to stable infection it is believed the milk contamination furnished the major part of their exposure.

SUMMARY

Preliminary evidence herein reported suggests that C. botulinum may, under certain experimental conditions, gain entrance to the milk via the animal host. The negative results in examining milk from experimental animals during the

†The spore suspension originally used to infect the udder failed to induce illness when injected into guinea-pigs. A period of several days following exposure of guinea-pigs before illness is not necessarily suggestive of the infectivity of spores. Small amounts of toxin may prove fatal only after an interval which corresponds to the period of incubation of a bacterial infection. Free toxin was not, however, demonstrated in the sterile milk filtrate from an infected udder.

ten-day period preceding the feeding of toxin and spores obviously suggest that the avenues of invasion are related to the contaminated rations, while the part played by a contaminated soil or other extraneous fomites is not excluded.

The presence of the spore in fresh milk for immediate consumption is probably of no toxicogenic significance to the human family, if the negative results in guinea-pigs, following injection of fresh milk contaminated with spores, are a reliable guide. However, an experimental teat canal or udder infection was repeatedly transmitted in the milk, as demonstrated in guinea-pigs and possibly in calves. The production of minimum amounts of toxin in the udder could not, however, be demonstrated. The mammary secretion of an artificially infected udder proved positive to C. botulinum for several days, following the initial infection. The presence of free toxin in milk filtrate from an infected udder was suggested in only one instance. Repeated examinations failed to demonstrate free toxin in other milk samples from infected udders. In view of the negative results in guinea pigs, the possibility of C. botulinum toxin being excreted in the milk of lactating animals consuming contaminated feed is remote, though the contamination of milk from feces or other sources is not to be disregarded, since milk furnishes a favorable medium for the development of toxin *in vitro*.

□

DIAGNOSTIC CHEMISTRY AS A ROUTINE FUNCTION OF A STATE LABORATORY

STEPHEN DEM. GAGE and EDITH EARLE
State Board of Health, Providence, R. I.

Read before the Laboratory Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 15, 1921

FOR more than twenty years the place of the laboratory in the control of infectious diseases has been recognized. Today practically every state and large city, and numerous smaller communities, operate laboratories for the free diagnosis of diphtheria, tuberculosis, typhoid, and other infectious diseases. As serviceable methods for the diagnosis of other diseases have been developed the scope of many of these laboratories has been enlarged, and the field of the public health laboratory has come to include serology, histopathology, and cytology in addition to bacteriology. In the large majority of cases the main aim of these laboratories has been to assist in the diagnosis and control of contagious disease, and except in a relatively few instances no systematic attempt has been made to aid in the diagnosis and control of the so-called organic and similar non-contagious diseases.

The term "public health" today means more than the mere control or prevention of epidemics of contagious disease. It means the saving of the lives and the raising to a productive maturity of countless children who in former days were permitted to die. It means, or it should mean, the prolongation of life and of active service of thousands of men and women who even today are dying at the zenith of their usefulness through the inroads of the organic diseases. Modern medicine is becoming more and more a social service concerned as much with the prevention as with the treatment of disease. People of mature age are being urged that they be examined regularly in order that the development of organic disturbances may be detected in their early and most easily curable stages.

The human body may be likened to a chemical laboratory in which a wide variety of chemical reactions are taking

place, each one nicely balanced in its relation to other chemical reactions which must precede or follow it. The difference between health and disease, organically speaking, usually means that disease is the unbalancing of these reactions, and this unbalancing can most readily be detected by chemical examinations of the body fluids or excreta. The practicing physician recognizes this when he makes tests for albumin and sugar in urine as an aid in the diagnosis of nephritis and diabetes. The average physician, however, has neither the time, the facilities, nor the skill to make the more delicate quantitative examinations, which are of the utmost value in diagnosis and cure of diseases of this character. If the laboratory is to do its full part in promoting public health it must provide for the physician every possible aid, not only for the diagnosis, but also for the treatment of disease in the home as well as in the hospital.

WHAT OTHER STATES ARE DOING

Early in 1921 a questionnaire was sent out to all state health departments by a committee of the Conference of State and Provincial Health Officers requesting detailed information as to the character and scope of the laboratory service which they were providing for practicing physicians. Through the courtesy of Dr. B. U. Richards, Secretary of the Rhode Island State Board of Health and Chairman of that committee, we have been permitted to use some of the unpublished information obtained by his committee.

Of the thirty-three states from which replies were received, twenty-seven include some phase of diagnostic chemistry as a routine function of their laboratories. Eighteen of these state laboratories make examinations of urine, seventeen make examinations of feces, thirteen make examinations of breast milk, and twelve make examinations of gastric content. In only four states, Michigan, Delaware, Indiana, and Rhode Island, however, are the laboratories prepared to make approximately all of the chemical examinations of recognized diagnostic value, on all of these various classes of material.

With the increasing importance of blood chemistry in the diagnosis and treatment of disease, it seems most important for a diagnostic laboratory to be equipped for blood analysis. Yet only seven states out of thirty-three reported that they were prepared to make chemical analyses of blood and other body fluids. In nineteen states determinations of lead in water were made when required, but in the majority of cases these analyses were made only in connection with control of public water supplies in the water laboratories.

In fifteen of the eighteen states making diagnostic chemical analyses this service was free to physicians. In three states, North Dakota, Vermont and West Virginia, however, a fee of one to six dollars is charged for such examinations of this character as were made.

The following is a list of the tests on different classes of material considered of diagnostic value by practicing physicians, together with the number of states reporting that this test is made in their laboratories.

Urine: color—18 states; transparency—18; acidity—18; specific gravity—18; sugar (qualitative)—18; sugar (quantitative)—17; albumin (qualitative)—18; albumin (quantitative)—17; bile—14; urea—13; indican—14; acetone—13; diacetic acid—12; B-oxybutyric acid—10; total solids—8; chlorides—8; phosphates—9; sulphates—9; fat—5; blood—*; renal calculi—*; miscroscopic examination—15; diazo reaction—*; H-ion concentration—*; lead—6; arsenic—5; renal efficiency—3.

Blood: sugar—7 states; creatinine—7; uric acid—7; urea nitrogen—7; CO_2—consuming power—5; CO—hemoglobin—*; acetone-diacetic acid—6; B-oxybutyric acid—4; total nitrogen—4; nonprotein nitrogen—5; amino-acid nitrogen—4; ammonia nitrogen—5; total solids—5; creatine—5; cholesterol—4; calcium—*; fat—*; H-ion concentration—*.

*Statistics relating to this determination not asked in questionnaire.

Breast Milk: specific gravity—11 states; fats—13; solids—10; sugar—10; protein nitrogen—9; ash—9.

Feces: macroscopic examination—15 states; determination of fat (microscopic examination—8, chemical—6); undigested starch—12; blood—14; Kjeldahl nitrogen—5; bile acids—7; lead—5.

Gastric Contents: total acidity—11 states; free acidity—10; free HCl—10; combined acidity—11; lactic acid—11; blood—11; bile—11; microscopic examination—10; rennin—*; pepsin—*; H-ion concentration—*.

Body Fluids: specific gravity—7 states; sugar—6; albumin—7; mucin—6; globulin—*.

Water for Lead—19 states.

TABLE SHOWING THE NUMBER OF CHEMICAL DIAGNOSTIC TESTS ON DIFFERENT CLASSES OF MATERIAL MADE IN VARIOUS STATE LABORATORIES

Number of tests considered of diagnostic value	Urine 31	Blood 18	Feces 8	Gastric Content 10	Breast Milk 6	Fluids 5	Water for Lead 1	Total 79
Rhode Island	30	16	8	10	6	5	1	76
Michigan	27	13	7	8	6	4	1	66
Delaware	23	14	8	8	6	4	1	64
Indiana	27	13	8	5	6	4	1	64
Vermont	25	5	8	8	..	..	1	47
Texas	23	..	4	7	6	..	1	41
N. Dakota	15	4	4	8	5	2	..	38
D. of Columbia	21	..	4	8	..	4	..	37
New York	15	..	5	8	..	4	1	33
W. Virginia	13	..	3	8	6	..	..	30
Iowa	8	14	..	..	6	..	1	29
Louisiana	14	..	4	8	2	..	1	29
Alabama	21	..	1	1	..	..	1	24
Maine	13	..	1	..	6	..	1	21
Oregon	17	..	1	..	1	..	..	19
Arizona	9	..	4	..	1	..	..	14
Illinois	7	..	..	..	..	..	1	8
Kentucky	8	..	..	..	..	..	..	8
———*	..	..	..	..	5	..	1	6
California	..	..	..	..	..	..	1	1
Connecticut	..	..	..	..	..	..	1	1
Kansas	..	..	..	..	..	..	1	1
Maryland	..	..	..	..	..	..	1	1
Massachusetts	..	..	..	..	..	..	1	1
Missouri	..	..	1	..	..	..	..	1
New Hampshire	..	..	1	..	..	..	..	1
Virginia	..	..	..	..	..	..	1	1

*Reply to questionnaire received without name of state.

WHAT RHODE ISLAND IS DOING

Rhode Island was among the first, if not the first state, to offer free laboratory service to physicians in diagnosing disease. In 1894, the State Board of Health opened a laboratory for the free diagnosis of tuberculosis and diphtheria. The development of this service, and the growth of that little laboratory into the present laboratory of pathology and bacteriology is well known.

Realizing the value of chemical as well as bacteriological methods of diagnosis, the Board in 1917 established another laboratory especially equipped for diagnostic chemical analysis. For purely economic and administrative reasons this branch of the work has been centered in the chemical instead of in the pathological laboratory. However, these laboratories occupy adjoining quarters, and work in close coöperation.

The policy of the Board in the conduct of this laboratory as well as in the conduct of its pathological laboratory has been to offer to the practicing physician of the state every possible laboratory aid for prompt and accurate diagnosis, and to induce him to use the laboratory fully and freely by making it as easy as possible for him to do so.

If a laboratory of this kind is to accomplish the greatest amount of good it must be brought close to the people. In this respect Rhode Island has been an excellent field for the development of laboratory diagnostic service. Approximately 75 per cent of the population and a similar proportion of the physicians of the state are located within a twelve mile radius of the laboratory. For the convenience of physicians practicing within this area, a collecting station has been established in Providence where samples for analysis may be left at any time of day or night, and are delivered to the laboratory twice each day. For the benefit of physicians practicing in the northern part of the state, a second collecting station has been established at Woonsocket, near the center of population of this section. Samples left at this station are collected and brought to the laboratory each morning. It is the intention to establish similar collecting stations near other centers of population as soon as conditions will warrant, thus bringing the laboratory close to the people in every part of the state except the extreme rural districts.

As would naturally be expected a large proportion of the material submitted to the chemical laboratories by physicians for analysis consists of samples of urine, since this is the kind of chemical diagnostic work familiar to most physicians and utilized in their practice. The routine urinalysis as made in our laboratory includes color, transparency, reaction, specific gravity, determination of urea, tests for presence of sugar, albumin, indican, and bile, and a microscopical examination of the centrifuged sediment. When sugar or albumin are present quantitative determinations of the amount are made. Tests for acetone and diacetic acid are also made if the tests for sugar indicate that they may be present. All urine samples received before 4 p. m. are examined and a report on the analysis mailed to the physician before the laboratory is closed for the night, unless special tests are requested which require more time to complete. When requested results are reported by telephone as soon as completed.

In the case of samples of other material than urine, we have not found it advisable to establish a routine procedure, and on such samples we make only such examinations as the physician may request. Except in the case of blood samples we have not found it necessary or desirable to provide outfits for collecting and forwarding samples to the laboratory. Samples may be submitted in any kind of receptacle which the physician or patient may have available. The only restriction is that these receptacles must be of glass or porcelain, and that they must be tightly stoppered. For blood samples, however, we provide a special outfit with a sterilized wide-mouth jar containing the proper amount of potassium oxalate to prevent the blood from clotting, a sterilized Wassermann needle, and directions for drawing blood, all contained in a double mailing case.

The services of the laboratory are free to any physician in good standing registered in the state. That this service is considered of value is evident by the fact that 325 or nearly half of the physicians are using the laboratory more or less regularly, and is also shown in the rapidly growing number of samples submitted for examination. In 1918, the first full year after the laboratory was in operation, 3,745 samples were examined, in 1920, 8,908 samples were examined, while during the first ten months of 1921

almost 9,200 samples have been submitted. The total cost of this work during the calendar year 1920 was about $4,300, or slightly less than fifty cents for each sample submitted.

As the chemical examination of blood as a diagnostic procedure has been developed in comparatively recent years it has been found advisable to conduct a campaign to inform physicians as to its value, particularly in supplementing the urinalysis in certain cases. The extensive increase in the number of blood samples as well as in the number of physicians who are sending in such samples is an encouraging feature of the work of our laboratory.

For some years we have also been trying to focus the attention of the medical profession on the fact that there are possibly many unrecognized cases of mild lead poisoning in the state masquerading under other aliases, and that the laboratory could aid them in clearing up such cases. The result of this is reflected in the increasing number of determinations of lead in drinking water and in urine which we are called upon to make. Another interesting feature of the work of our laboratory is the fact that certain physicians are asking for the examination of urine samples for arsenic as an aid in controlling the treatment of syphilitic cases. We also encourage the physicians to come to the laboratory and let us help them with any problems associated with diagnostic chemistry which they may be unable to solve.

TABLE SHOWING GROWTH OF DIAGNOSTIC CHEMICAL WORK IN LABORATORY OF RHODE ISLAND STATE BOARD OF HEALTH

	Number of Samples Examined			
	1918	1919	1920	1921 (10 months)
Urine	3,674	6,234	8,736	8,938
Blood	18	43	84	135
Breast Milk	34	45	30	24
Gastric Content	5	7	9	15
Feces	3	19	31	35
Water for Lead	11	34	15	37
Miscellaneous	..	3	3	6
Total	3,745	6,435	8,908	9,190

PROPER CLEANSING OF GLASSWARE AND OTHER UTENSILS IN PUBLIC DRINKING PLACES

ANNA I. VAN SAUN, ADA W. BANCROFT and JAMES J. O'GORMAN
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THE common public drinking glass has been abolished in most wide-awake communities, and the more progressive public drinking places have adopted the further safeguard to the health of those who patronize them of proper cleansing of glasses and other containers used in the dispensing of various drinks. Many soda fountains and soft drink places, however, still cling to the old method of a dip into cold or nearly cold water, which is often too dirty to be described.

The possibility of transmission of the infectious agents of disease through imperfectly washed glasses is by no means remote. Many instances of infection of human beings by such means have occurred. Syphilis, tuberculosis, diphtheria, typhoid fever, septic sore throat, and

nearly all other communicable diseases may be so transmitted. In recognition of this fact, about two years ago Dr. Frank W. Wright, health officer of New Haven, drew up and presented to the Board of Aldermen an ordinance which was passed by them, relative to the proper cleaning of glassware and other containers used for the service of drinks to the public.

In a preliminary survey made by the food inspector, gross carelessness in the matter of washing such containers had been observed; therefore the health officer brought the matter to the attention of the Bureau of Laboratories, suggesting that an investigation be made of the methods used, with the object of formulating rules for the guidance of those dispensing drinks, since some difficulty had been experienced in selecting a method of sterilization which would produce the desired results without inflicting great expense and other hardships on owners of such establishments.*

The City ordinance reads as follows:

ORDINANCE CONCERNING STERILIZATION OF DRINKING CUPS, GLASSES AND OTHER CONTAINERS

Be it Ordained by the Board of Aldermen of the City of New Haven:

SECTION 1. It shall be unlawful for any person, firm or corporation maintaining a restaurant, lunch-room, saloon, soda-water fountain or other place where drinks of any description are sold, to dispense drinks from glasses, cups, or other containers, unless said glasses, cups, or containers have been sterilized after each serving by immersing in boiling water, subjecting to live steam† or some other method of sterilizing approved by the Board of Health.

SECTION 2. Any person, firm or other corporation violating any of the provisions of this ordinance shall, on conviction, be fined not less than five dollars for each and every offense.

Enacted by the Board of Aldermen, March 24, 1919.

Approved by the Mayor, March 26, 1919.

Operative and in effect April 2, 1919.

*A preliminary report of this work was published in the *Monthly Bulletin* of the Department of Health in May, 1919.

†These methods proved impractical, resulting in great destruction of glassware and cloudiness of that which survived.

In looking over the literature it was not found that much had been done on the subject under consideration.

The Department of Health of New York City, through the Bureau of Laboratories, in 1916 made a survey of the various methods of dish-washing obtaining in restaurants throughout the city. A number of experiments were performed by Manheimer and Ybanez[1]. They concluded that boiling water is necessary for sterilization.

A personal communication from Dr. Jane L. Berry of the Bureau of Laboratories, who had charge of an investigation of the methods of washing glassware and other containers in places which dispensed soda water (such as drug-stores, corner stands and push-carts), the results of which have not yet been published, gives some interesting findings in connection with the problem of disinfection of containers with chemical solutions. The Centadrink fountains had been using at that time a saturated solution of chloride of lime with which to disinfect their glasses, and this gave surprisingly good results. Not only did the saturated solution accomplish its purpose but she found that much weaker solutions could be used, and that disinfection was practically instantaneous in most instances. The washing of glassware with soap and water diminished the number of bacteria very markedly, but it was necessary to immerse the glasses in water at nearly boiling temperature to effect complete and instantaneous sterilization.

H. N. Cole[2] comes to the conclusion, as the result of a study of syphilitic infections, that boiling water is necessary for complete disinfection of glassware. He says: "There should be stringent laws, enforced by careful inspection, requiring the placing of all dishes, glassware, and silverware in boiling water for five minutes. This would effectively kill all organisms and fully protect us."

A survey of a series of representative hotels, restaurants, lunch and tea rooms,

ice cream parlors and soda fountains classed as excellent, good, fair and poor was taken as a basis for the work in New Haven. For this survey a card printed as follows was used.

The back of this card contained space for "remarks."

Type Place	Proprietor	Date
Containers	Method used	Wet / Dry
Soap powder	Kind	Hot water / Cold
Washed		" / "
Water heater	Type	Constant use / Occasional use
Chemical sol.	"	
Containers dried?	How?	
Effect of rush hours or days		
General score		

(OVER)

The preliminary survey of the situation in New Haven showed that two method existed for the washing of glassware in public drinking places—the "wet" and the "dry." The wet method on account of its simplicity is the one followed in the majority of the smaller places. As its name would indicate, it consists of serving the customer with a glass which has not been dried after having been more or less washed with any one of a variety of soap powders, in sometimes tepid but more often cold water, and sometimes without the formality of the use of a soap powder. In the dry method the glasses are washed in hot soap suds and thoroughly dried, either in a heater or sterilizer, or by hand with a towel. The wet method was followed in a fashionable candy shop and it never seemed to have occurred to the customers that they might demand more care in the serving of their orders. Mechanical dish washers were found only in a few large hotels and restaurants. These are not, as a general rule, used for the washing of glasses.

It was decided to experiment with eight different brands of soap powder, those found to be most generally in use. These were numbered from 1 to 8.* Since the majority of places using the soap powders were careless as to the preparation of the solutions, it seemed well to test these powders for their solubility in water at different temperatures, as the full effect of the powder cannot be obtained unless it is completely dissolved.

One of the chief difficulties which beset the owners of various drinking places was that of heating water. After some investigation it was found that the cheapest and most reliable method of accomplishing this would seem to be by means of any one of several makes of gas water heaters. The water supply of the laboratory is heated by one of these which is set to give a temperature of about 145° F. This temperature is much too hot for the hands to bear and should dissolve soap powder. Therefore samples were taken of the soap powders previously mentioned and a tablespoonful of each was dissolved in a separate two-

*Names of the powders may be obtained upon application to the Health Officer, Room 10, City Hall, New Haven, Conn.

quart container of water of the temperature above stated, save in the case of No. 7, where four times the amount was used, as the directions on the package called for that quantity.

Four of the samples dissolved rapidly, namely, Nos. 2, 4, 7 and 8, being completely dissolved within five minutes. Two of them, 5 and 6 respectively, were nearly dissolved, and No. 3, had a good deal of the powder undissolved at the end of five minutes. No. 1 was exceedingly difficult to dissolve unless actually boiled for a short period, and in our opinion should not be used where boiling water cannot be obtained. Tests were also made of the solubility of all the powders in cold water. Only one, soap powder 4, dissolved rapidly; 1, 2, and 3 with difficulty; 5, 6, and 8 fairly well, and 7 somewhat more rapidly.

Practically no bacteria were found in tests made of the hot soap solutions before they were used, with the exception of No. 1, which contained a few bacteria. It was found to be impractical on account of lack of time and assistance to take cultures from a large number of glasses in the shops. It was therefore decided to contaminate glasses artificially in the laboratory. For this work a laboratory stock culture of staphylococcus in broth was used. The thermal death-point of this organism is 140° F. The rims of rather thick tumblers were contaminated by means of rubbing with sterile swabs dipped in the broth culture. The glasses were allowed to dry, then a culture was taken with another sterile swab from the rim of each of the glasses, inoculated into agar, and poured plates made to determine the number of organisms living before the glasses were dipped in the soap solutions. The glasses were then immersed in the soap solutions and left there for three minutes and again tested for the presence of living bacteria, the temperature of the solutions then being about 113° F. The table shows the results obtained. A further test was made after the tumblers had been heated in the solutions to the temperature of the water heater, 145° F. Glasses dried by hand with a towel showed practically no bacteria.

It will be seen that the tests made before the glasses were washed showed living bacteria. Soap powders 1 and 7 reduced the bacteria to 50 per cent, soap powder 2, to 20 per cent, 3, to 45 per cent, 4 to 5 per cent, 5 to 1 per cent, 6 to 35 per cent and 8 to 15 per cent. . .

Since Dr. Berry in her work in New York had found the chloride of lime solution so efficient as a disinfectant, a saturated solution of it was tried in the New Haven experiments on contaminated glasses. The effects were all that she had claimed for it, disinfection being practically immediate.

The results of this investigation have shown an inclination on the part of the proprietors of public drinking-places to improve their methods and personnel. The better types of places have shown marked improvement, and the smaller places are using paper containers which are certainly more desirable than imperfectly cleansed glasses. At the present time a higher class of labor can be procured than at the time this work was done, with a consequent decided betterment of general conditions.

The chief difficulty in enforcing the law lies in the fact that New Haven has but one food inspector, whose time for this particular work is very limited.

CONCLUSIONS

1. Glasses used in public drinking places should be thoroughly washed in hot soap and water, rinsed in running hot water and dried before being used by another customer. The soap solution should be changed frequently.

2. Glasses cannot be properly washed in cold water.

3. Of the soap powders tested, those which dissolved most readily would seem to be safer to use in most instances than

TABLE SHOWING THE EFFECT OF COMMONLY USED CLEANING SOLUTIONS AT VARYING TEMPERATURES UPON THE "STERILIZATION" OF GLASSWARE

Cleaning Solutions		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9
Solubility	at 145° F. (heater temperature)	Difficult	Excellent	Fair	Excellent	Good	Good	Excellent	Excellent	Saturated solution of chloride of lime in cold water
	in cold water	Difficult	Difficult	Difficult	Excellent	Fair	Fair	Good	Fair	
TEST A Number of bacteria found in the cleaning solution before using.		All solutions were practically sterile								Sterile
TEST B Percentage of bacteria found before washing glasses which have been been treated with pathogenic bacteria.		100%	100%	100%	100%	100%	100%	100%	100%	100%
TEST C Percentage of bacteria found on same glass after standing in solution for 3 minutes at 113° F, except No. 9 which was used cold.		50%	20%	45%	5%	1%	35%	50%	15%	Practically Sterile
TEST D Percentage of bacteria found on glasses treated as in "Test B" and then left in solution for 3 minutes at 145° F (heater temperature).		.01%	.01%	.01%	Practically Sterile		.01%	.01%	.01%	

those which are difficult to dissolve, since the full benefit of a soap powder cannot be obtained unless it is entirely in solution.

4. A saturated solution of chloride of lime will instantaneously disinfect glasses placed therein.

RECOMMENDATIONS

1. Wherever possible, hot water of a temperature of at least 145° F., in which a sufficient quantity of an easily dissolved soap powder has been placed should be used for the washing of glasses or other containers, which should be entirely submerged in the solution and left there for at least three minutes.

2. For places not equipped for washing glasses with hot water the saturated solution of chloride of lime is suggested. Glasses disinfected with this solution should, of course, be thoroughly rinsed.

3. Glasses should be thoroughly dried. Experiments have shown that clean, dry glasses do not usually harbor bacteria.

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2. Cole. H. N., *Jour Am. Med. Assn.* 1916, No. 25, p. 1805.

Make your plans now for attending the Cleveland meeting, October 16-19. Details in next issue of JOURNAL.

SOME FUNDAMENTALS IN WORLD HEALTH WORK*

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THE outlines of a world-wide campaign for health are beginning to emerge. There are working agreements among governments. The Health Committee of the League of Nations, the League of Red Cross Societies, international scientific bodies, the International Health Board are in the field. The scientific research workers in many national centers are in constant communication. Knowledge is being applied more effectively to the problems in the field, and information about methods and results is being disseminated more systematically and rapidly.

Governments are sending attachés of hygiene into each other's territories. Vital statistics on an international scale are being reported more accurately. Prompt notification of epidemics is being facilitated. Outposts against plague and other diseases are being stationed and supported. The League of Nations' Committee has organized a barrier against typhus for the protection of Western Europe and the United States.

Leaders and technical experts are in training in larger numbers and under more favorable conditions. Underlying medical training is being improved, and schools of hygiene are being established in Baltimore, Boston, London, Prague, Warsaw, Calcutta, and elsewhere.

A committee of the League of Nations is attempting to standardize internationally vaccines and sera which now vary widely in potency and purity from nation to nation and even within the same country. Popular knowledge about preventive medicine and personal hygiene is increasing. Intercommunications of many kinds are being improved and multiplied.

It is more and more evident that curative and preventive medicine are two aspects of the same thing. Emphasis shifts from care of the sick to the avoidance of sickness. The doctor of the future will be more useful as a periodic examiner and health counselor than as an emergency man called in after disease has made serious progress. Curative medicine deals with the individual patient; preventive medicine concerns itself with communities, states, nations, the world.

Public health is primarily a governmental responsibility. Private health agencies may aid governments, but should not seek to serve as substitutes for them. Private health associations may render important service in conducting experiments and demonstrations, in coöperating with public authorities, and in organizing popular support for government policies.

There is an order of importance in public-health projects. Fundamental things like sanitation and control of epidemics should not be neglected for more spectacular and emotionally appealing activities. There should be constant appraisal and readjustment of public health work in the light of world experience. Here as in every other field there is danger of waste of money and effort.

A fundamental theory to guide health policies is lacking. On the one hand extremists welcome disease and even vice as essential means of weeding out the weak and unfit. On the other, it is affirmed that all individual lives and all races are to be regarded by health organizations as equally valuable. Probably no philosophy of preventive medicine can ever be agreed upon, but the problems involved cannot be ignored. Manifold world-wide contacts and interdependencies make the health of each in some sense the concern of all.

*Abstract of an address delivered before the National Conference of Social Work, Providence, Rhode Island, June 24, 1922.

PUBLIC HEALTH NURSING SERVICE IN A STATE DEPARTMENT OF HEALTH

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ONE of the many perplexing problems in state health administration has been the proper coördination of the work performed by public-health nurses. Their field of service is so new, so constantly enlarging in its scope, and so rapidly undergoing changes in emphasis, that any discussion of the problem, to say nothing of a solution, has been well-nigh fruitless.

Are we beginning to see a solution of the problem? It is perhaps significant that the subject recently received attention simultaneously in two journals of national authority within the same month. Dr. Allen W. Freeman, lecturer on public-health administration at Johns Hopkins University, and formerly commissioner of health of Ohio, set forth the "Organization of Public Health Nursing in the State Board of Health" in the March, 1922 issue of *The Public Health Nurse*. Miss Rose M. Ehrenfeld, R. N., director of the bureau of public-health nursing and infant hygiene in the State Board of Health of North Carolina, had a paper on "The Relation of Public Health Nursing to other Phases of Work of the State Board of Health with Special Reference to That of the Division of Child Hygiene" in the March, 1922 issue of the AMERICAN JOURNAL OF PUBLIC HEALTH.

Thus, we have the problem discussed by two public-health workers possessing intimate first-hand knowledge of the subject. The one approaches the problem from the medical (for want of a better term) point of view; the other from the nursing (again for want of a better term) point of view. Recognizing the administrative problem involved, each endeavors to reach a solution from a different standpoint. Both agree upon the organization of the public-health nursing service as an independent bureau or division in the state department of health. Both insist upon the necessity of having a well-trained, experienced public-health nurse in charge of such bureau or division, reporting directly to the chief executive officer of the state department of health. Their agreement does not seem to be so clear about the detail content of the work to be performed by the public-health nurse. This lack of agreement appears to center around the difficulties in harmonizing the program of public-health nursing and child hygiene.

In this connection, an earlier attempt to harmonize the functions of a state department of health was made by Miss Jessie L. Marriner* in a very suggestive analysis of the work of the various bureaus established by a state department of health. Here the approach to the problem is upon the basis of function. Other attempts have been made to analyze the problem on the basis of organizing the type of workers. If the organization of a division of public-health nursing is to be justified upon the basis of function or type of worker, we believe it would be difficult to sustain the justification in the face of severe competition. However, the establishment of a division of public-health nursing can be easily justified on the basis of method of work. We believe the phenomenal growth in public-health nursing is to be attributed not to the functions performed nor the particular type of worker, but to the method of work employed in the functions performed by the particular type of worker.

*Marriner, Jessie L. "Functions and Relationships of Bureaus of Child Hygiene and Bureaus of Public Health Nursing in State Boards of Health." *American Journal of Public Health*, August, 1921, pp. 707-711.

There was a time, not so many years ago, in the organization of a state department of health when the routine of daily work could be easily performed by divisions of administration, vital statistics, sanitary engineering, laboratory and communicable diseases. Each of these divisions, as its name implies, had a definite field of service to cover which conflicted in no way with that of any other division. These divisions were also in charge of persons who either had definite training for their work or had gained such knowledge through experience. Furthermore, and most important of all, each of these divisions had a definite method in approaching its field of service. Thus, the administrative task of coördinating the work of these divisions toward the end in view, namely, reducing the mortality and the morbidity rates, became simply the problem of securing the coöperation of the personnel of the various divisions.

Suddenly all of this was changed. There broke into view a region, unknown and unexplored, which in order to be reached seemed to require the addition of new divisions, new personnel, and new methods. We see, therefore, a rapid extension of the organization of state departments of health by the creation of divisions of tuberculosis, education, publicity, public-health nursing, child hygiene, industrial hygiene, and social hygiene. As a result of the advent of these divisions of work we meet with a host of new workers—doctors, nurses, teachers, social workers, publicity workers, business men and women, ministers, and lawyers; and finally, in addition to new divisions and new personnel, there came a new method of approach to the public-health problem, which used education as its main instrument.

Public-health administrators were not prepared to meet the new situation. There was no previous experience upon which to draw, no clear-cut theory upon which to work, and the only thing to do was to grope slowly toward the light. Varied attempts to meet the problem brought forth some startling results. The absurdity of some of the results can be seen at a glance when alongside of divisions of administration based upon business methods, of communicable diseases based upon methods of epidemiology, of sanitary engineering based upon engineering methods, of laboratories based upon laboratory methods, of vital statistics based upon statistical methods, there is placed a division of hygiene based upon no method at all, and which is organized under the direction of one individual, to include bureaus of tuberculosis, child hygiene, venereal diseases, hospitals, prevention of blindness, and public-health nursing. What progress could we expect to see developed out of such a "grab-bag" of a division?

Another difficulty arose in the competitive struggle to develop a local field service by each of these bureaus within the same division. The limitations of finances alone, not to consider any other limitations, make it clearly out of the question to endeavor to build up a specialized local field service to carry out the programs of these specially created bureaus. No such difficulties had been experienced earlier because each of the divisions had its own service, personnel, and methods, and each one could accomplish its results through the local health officer without feeling the need for additional local workers with special training.

Need one be surprised if the administrative problems became so complex as almost to defy solution? Gradually, some system began to appear out of the seeming chaos. There began to be recognized two phases of the educational process—the education of the individual and the education of the mass. Accordingly, the selective process brought two groups of workers to the fore—public-health nurses upon whom was placed dependence to carry on effectively the education of the individual in the home, and publicity

specialists or educators to carry on the mass education. State and local departments of health began to employ public-health nurses in large numbers; divisions of public-health nursing were organized, and standards relating to education, training, type of work, methods of work, records, salaries, and hours, were gradually evolved.

Some system began to take shape in the state program. It was beginning to be realized that to the health officer, representative of the remedial type of health work, had been added another worker, the public-health nurse, representative of the preventive type of health work. Both came in contact with the individual and the family in the home, but each with a different approach.

It was seen that dependence must be placed by the state health department upon the local health officer and the local public-health nurse in carrying out any state-wide program, no matter what its specialized field might be. And so, all of the special phases of public-health work which make use of the education of the individual in the home as their method must be so organized in the state department of health as to function smoothly through the local public-health nursing service.

We believe a division of public-health nursing in a state department of health has two main responsibilities. The first is to the local public-health nurse employed in the municipality or the county. The second is to provide service to the other divisions in the department where the nature of the work is dependent upon public-health nurses for its satisfactory accomplishment. These two responsibilities are quite different in character, and it is the failure to distinguish properly between them that has caused so much of the administrative difficulty.

However, it must not be forgotten that the public-health nursing service is only a part of the whole public-health administration, and that the public-health nurses, whether employed by the state or by the local department of health, must formulate their programs and perform their daily services in the closest possible coöperation with the programs and services in the other fields of public-health administration.

Public-health nursing service in a state department of health should be organized as a major division on a basis of equality with all other major divisions. There should be a well-trained and qualified public-health nurse in charge of the work, with such assistants as are necessary for the volume of work to be performed. The division should have at least four subordinate bureaus, each in charge of an experienced public-health nurse, to carry out the essential present-day functions of such a division. These bureaus are (1) development and placement, (2) record, (3) consultant, and (4) service.

1. The development and placement bureau should be engaged in three primary activities. It should be the means by which local fields of public-health nursing are developed as rapidly as experience shows the value of such service in meeting public-health problems. It should be engaged in recruiting pupils for schools of nursing and in recruiting nurses for public-health nursing work. It should be engaged in securing competent public-health nurses to fill new positions and vacancies in the state and local health organizations.

2. The record bureau should be engaged in keeping and in developing all records found to be necessary in the public-health nursing service, either in the state or local work. A regular and systematic scheme of reporting from the local to the state and from the state to the local nurses should be established.

3. The consultant bureau should have a staff of experienced public-health nurses placed in districts to render a consulting service to all local public-health nurses. Such consultant nurses should have districts of such size that they can

visit each nursing center at least every two months on a regular schedule.

4. The service bureau should have a staff of public-health nurses who have had specialized experience and training in tuberculosis, child hygiene, social hygiene, prevention of blindness, mental hygiene, school hygiene, and other special health problems, to work in close coöperation with such major divisions or bureaus as may be in the state organization which demand such service as a part of the successful operation of their program.

At the present time no such organization has been built up in the United States, and yet we witness the daily endeavor of a handful of public-health nurses in a state department of health to render each of these services. Until all of these services can be properly provided, a policy which is founded upon the theoretical basis of the specialized hygienes should not be adopted. All of these are undoubtedly necessary, but they should take their place in the state program only when provision has been made for properly administering them. The staff of a state department of health must work for and through the local department of health. Any state program which does not take this fact as its major premise will lead to confusion. The methods of working for and through the local health commissioner are fairly well established. Such is not the case with the methods of working for and through the local public-health nurse. It is at this point that we need to concentrate. When there comes some semblance of method in applying the preventive principle of education to the individual in the home, then many of the present-day administrative difficulties will disappear.

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PUBLIC HEALTH CONSERVED THROUGH THE ENFORCEMENT OF POSTAL FRAUD LAWS

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Read before the Food and Drugs Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 18, 1921

THE use of the mails is a privilege granted by the government to all parties residing within the United States. This privilege may be withdrawn for cause. Congress has passed laws directing what is and what is not mailable. These laws are supplemented by regulations that have the force and effect of law until set aside by the courts. The Postmaster General is directed to enforce these laws and is given certain discretionary power. In case of fraud order procedure this official may, upon evidence satisfactory to himself that any person or company is engaged in conducting a scheme or device for obtaining money through the mails by means of false and fraudulent pretenses, representations, and promises, withdraw the privileges of the mails from such parties. This means that the person or company is enjoined from receiving any further mail addressed to such person or company and all registered letters so addressed are marked "fraudulent" and returned to the original senders.

The hearings are conducted in the same manner as are court cases, excepting that there is less formality in presenting the evidence, and the testimony is not given under oath. There is great flexibility. The defendant is permitted

to present anything that he thinks advantageous to his case. A fraud order is not always issued, even though his business is shown to be a scheme to defraud. If the Postmaster General finds mitigating circumstances he may, and often does, accept an affidavit from the offender agreeing to discontinue the business immediately or after a stipulated time. Another alternative is at times asked for and granted, namely, a revision of the business in such a manner as to eliminate all fraudulent elements.

These laws stand between schemers and the public. Their enforcement covers legions of schemes to separate the people from their money. The fraud law denying the privileges of the mails, and its companion penal statute covering the same elements, save the patrons of the United States mails millions of dollars annually. It is under these two laws that medical schemes and frauds using the mails are reached. The writer has been identified with the enforcement of these laws since 1903, covering not only medical schemes but other schemes requiring expert knowledge, such as adulterations and misbrandings of all kinds, particularly foods and drugs and allied commodities. During this time there have been developed definite methods of procedure and precedents based largely on court decisions. These laws, as in the case with other stringent laws, have encountered their share of violent and powerful opposition. Their basic principles are, however, now thoroughly established by numerous federal court decisions.

This contribution aims to deal with general schemes for the treatment of tuberculosis, cancer, habit - forming agents, and syphilis, which jeopardize public health. The monetary side, which in the final analysis is the prime object of the promoters of these activities, will receive little consideration.

Among the first medical products actively considered during the writer's connection with the post office work were the alleged consumption cures. Investigations were made and reports submitted by various post office inspectors. These earlier investigations and reports were not as thorough as at the present day, either as to the chemical examinations or the medical questions involved, nor was it necessary, because the schemes were much cruder than they are at present. In order to secure evidence that the mails are being used for carrying out any line of promotion, it is necessary for an inspector to enter into correspondence with the business as a regular corespondent, and thus procure through the mails the actual material that is in use, and information as to the manner in which the business is conducted. This is necessary for the reason that the mails are secret. One can sit down in his own home or place of business, put his inmost secrets or private business propositions, involving thousands of dollars, into an envelope and send them to any part of the United States through the mails, with the utmost assurance that the material will be delivered to the party for whom it is intended. The laws of the government insure this privacy to every citizen or sojourner who uses the mails. This privilege is strictly guarded by the postal inspection service and is accorded to any citizen regardless of character. Because of this privacy the mails lend themselves readily to any form of imposition on the public involving either money or health. The Postmaster General and his agents are specifically forbidden to open any letter, even though they are positive that certain mail matter contains material which is forbidden by law to be placed in the mails. It is for this reason that the plan of correspondence outlined above must be resorted to. Many of the cases are initiated on complains which result in an investigation and a report by a post office inspector either to a local district attorney recommending proceedings under the criminal law, or to the chief

post office inspector or the solicitor of the department. If the reviewing officer is satisfied that fraud or crime is revealed by the report, suitable action is taken to punish the offender.

Tuberculosis is the opportunity par excellence for deceiving the unfortunates, taking away their money, and depriving them of proper treatment at a time when the opportunities for regaining health are the best. The alleged consumption cures cannot be considered other than as public menaces. Though the medical profession and many laymen are satisfied on this point, it is not such a simple matter to convince a jury or a judge sitting in the case that a given product is a fraud, particularly in view of the fact that medical men themselves have often advocated the use of certain drugs for the treatment of tuberculosis. There were literally scores of drug mixtures advertised for curing consumption twenty years ago. Many of them have ceased to appear, but there are still a fair number of drug treatments exploited.

"Tuberculozyne" was one of the first of these preparations to receive consideration at the hands of the post office department. It contained heroin and certain other ingredients, among them an organic copper compound. At the hearing of this case the medical experts for the government testified that they knew of no drug which would be efficacious in curing tuberculosis. The defendant, however, put in the record some experiments that were made by European physicians and reported that the organic copper compound was a cure for tuberculosis. After the evidence was completed, the question of issuing a fraud order came up for final consideration. The judge said, in substance, that he did not see how it would be possible for him to recommend the issuing of a fraud order in this case, in view of the fact that the defendant produced evidence of a medical nature which showed that this organic copper compound was efficacious as a cure for tuberculosis. While he recognized the existence of different degrees of ability or standing of medical men, it was incumbent upon him, unless shown to the contrary, to give all medical evidence, printed or otherwise, the same consideration, and under the circumstances he did not feel justified in recommending the issuance of a fraud order. No fraud order was issued, which was rather a disappointment, and indicated the difficulties to be surmounted, because it was well recognized that favorable reports could be found for many substances as being efficacious for the treatment of this disease. Reports came in from different inspectors on alleged consumption cures, and different inspectors reporting on the same preparation often presented different angles.

It frequently happens that there are non-medical elements involved in these cases embodying fraud, concerning which there can be no doubt. Certain persons promoting such preparations were cited to show cause why fraud orders should not be issued. Not only were fraud orders issued covering some of these products but those behind these schemes began to realize that the use of the mails is being slowly but definitely withdrawn from them, and that it would be only a matter of time when it would be necessary to abandon the mails voluntarily or be prepared to accept a fraud order sooner or later. Some discontinued using the mails, disposed of their wares through drug stores and through demands created by newspaper advertising, which sort of advertising is not prohibited the use of the mails as the laws are construed at present.

The situation at this writing is that the number of alleged consumption cures being promoted through the use of the mails has been materially reduced. There is nothing new or novel in the mixtures used as the basis of the propaganda. The drugs are usually well known except in cases where the product is supposed to be the discovery of some missionary, ex-

plorer or doctor, or has some mysterious properties resulting from certain mixtures. The habit-forming drugs of the opium type, of course, are gone. Expectorants, tonics, laxatives, and alleged germicides cover the entire list. Among some of the drugs used may be mentioned terebene, the iodides, sulphurous acid, sulphur dioxide gas, eucalyptus oil, pine oils, ammonium chloride in vapor and solid forms, emulsions, and all forms and characters of tonics and laxatives.

The treating and curing of tuberculosis is frequently a side issue of some product exploited for another condition, syphilis for example. With the precedents already established, the time is near at hand when the bombardment of the unfortunate consumptive with deceptive advertisements will cease, thus giving him a chance to be returned to strength and health under proper treatment.

The alleged cancer cures received attention at an early date. One of the first of this line considered was "Radol," a hydroalcoholic liquid alleged to be rendered radioactive. In this instance the question did not devolve on the curative effect or otherwise of radium or radium emanations for the treatment or cure of cancer. It was simply a question as to whether or not the product did, or did not contain any material derived from radium. The facts were that the preparation did not contain any more radioactivity than ordinary Potomac River water. A fluorescence was imparted to the mixture by the addition of a small amount of an acidulated solution of quinine sulphate. Thousands of testimonials from lay users and some affidavits from medical men were put in evidence showing that the preparation did cure cancer. A fraud order however was issued.

With this case disposed of, investigations were made and reports submitted to the postal authorities regarding other alleged cancer cures. It was clearly shown by the evidence adduced by the government that the treatment of cancer by mail was a fraudulent practice pure and simple, and that the practice simply means taking away the last vestige of hope from the persons induced to try the treatments. In every case cited either a fraud order was issued, or the business discontinued on affidavit to quit the mails. The unfortunate part of discontinuing the use of the mails on affidavit is that no publication can be given the matter. It remains secret with the Department. The cancer cure business was practically broken up so far as the use of the mails was concerned in a short time. Of recent date it has been noted that several cancer cure firms are using the mails, but it is not believed that these lines of endeavor will continue very long after they are brought to the attention of the postal authorities.

After the enactment of the Food and Drugs Act, evidence began to be accumulated showing that the so-called drug habit treatments contained the very drug of which the promoters claimed to cure the unfortunate addict. The manner in which they were exploited clearly showed that these treatments were frauds of the most sinister type. A number of them were reported under the Food and Drugs Act, but the sending of the material to the consumer made it difficult to bring cases under this law, and furthermore the courts did not seem to be very sympathetic with the idea of bringing cases under that law on what were termed "induced shipments." The situation was finally successfully handled through action of the postal authorities. The procedure involving the mails covered not only issuing of fraud orders, but prosecution under the penal statutes for devising schemes to defraud, and sending poisons through the mail. The promoters of the drug known as "Habitina," containing both morphine and heroin, were in court and found guilty of both fraud and sending poisons through the mails. The two defendants were each sentenced to seven years in the penitentiary and to

pay a fine of $2,000. This drastic court action had a very wholesome effect upon users of the mails for promoting such treatments. It should be stated, however, that morphine is still surreptitiously sent through the mails. The post office department has just unearthed a case where a number of large cubes of morphine hydrochloride were sent through the mails to supply an addict. This is a penal offense and the sender, if found, is liable to serve a term in the penitentiary.

During and subsequent to the war much attention was given to the so-called syphilis cures and treatments, many of which had been on the market for years. The mercurial treatments with or without the iodides have been recognized as of signal service in combating this disease. It was only after the advent of salvarsan that this disease received the systematic study which finally placed its treatment on a satisfactory basis. It is well recognized that patients suffering with syphilis are very much disinclined to use the mercurial treatment over a sufficient length of time to eradicate the disease, and furthermore the layman is unable to determine when he is or is not free of the infection, whatever may be the nature of the treatment. It is also certain that the layman is not qualified to use the injection treatment of salvarsan. We therefore have very direct lines of attack on the alleged syphilis cures.

Syphilis treatments in general possess some tonic and laxative properties. A few contain small doses of potassium iodide and corrosive sublimate. The claims made for the drugs are remarkably strong, based largely on early medical literature and testimonials. It was thought by some early observers, and so stated in the literature, that the product known as Stillingia compound was efficacious for the treatment of this disease, but it has been proven of recent years that this mixture is of no value as a curative agent for syphilis. The originators of these treatments are generally laymen but, sad to relate, medical men are sometimes involved in the business.

At this point it may be well to note that there is no product so worthless, no representation so far from the truth, but some medical man somewhere may be found who is willing to testify in support of the business. It is true that in many instances these medical men on cross examinations make good witnesses for the government, much to the chagrin of the defendants. It is not believed that these medical men deliberately testify to falsehoods, but one can not escape the conviction that either they themselves are being duped or they have some ulterior motive. Some of the medical men who testify in behalf of the promoters who are cited to show cause why a fraud order should not be issued against the business, are woefully ignorant of modern medicine.

A professor of one of the leading Hahnemann schools and a member of a pharmacopeial committee of revision testified in favor of what the writer believes to have been one of the grossest impositions that has ever been perpetrated on the public. It is quite certain that he would not be pleased to have his name made public in connection therewith, but such action would certainly have a wholesome effect regarding medical men actually supporting some of these impositions. The scheme in behalf of which the professor testified was shown to be so grossly fraudulent that the promoter voluntarily agreed to withdraw from the use of the mails, and sell his commodities through regular drug trade channels.

Most of the testimonials from laymen now met with are genuine. Formerly this was not the case, and even at the present time many are secured under conditions that are, to say the least, unworthy. For example, during the war a preparation containing iron featured this

fact very prominently, calling attention to the need of iron men to save humanity. The testimonial of an aged general of the United States Army was used. The writer interviewed the general on an invalid's bed and he was good enough to tell the story of the testimonial, which is in substance as follows: "A friend of mine came to me and said that he had a medicine which he believed would do me great good, and placed a package of it at my disposal. I took one tablet. It seemed to do me good. A few days later he called on me, and after a short conversation I signed a testimonial, because I believed in iron as medicine." The good general was asked, whether he would recognize his friend's name and he said he would. On mentioning the gentleman's name, he identified it as that of his friend. It may be interesting to note that this gentleman was very active in Washington, and secured in similar ways other testimonials of prominent Washington men, which testimonials were largely used to exploit a very much advertised drug. A physician, and at one time an assistant postmaster general, also gave a testimonial, whether under similar circumstances was not ascertained, because, when the matter was brought to his attention he became angry and refused to discuss his connection with it, but to the writer's knowledge his testimonial did not appear in the public press thereafter.

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HEALTH BOOKEEPING IN THE HARLEM HEALTH CENTER

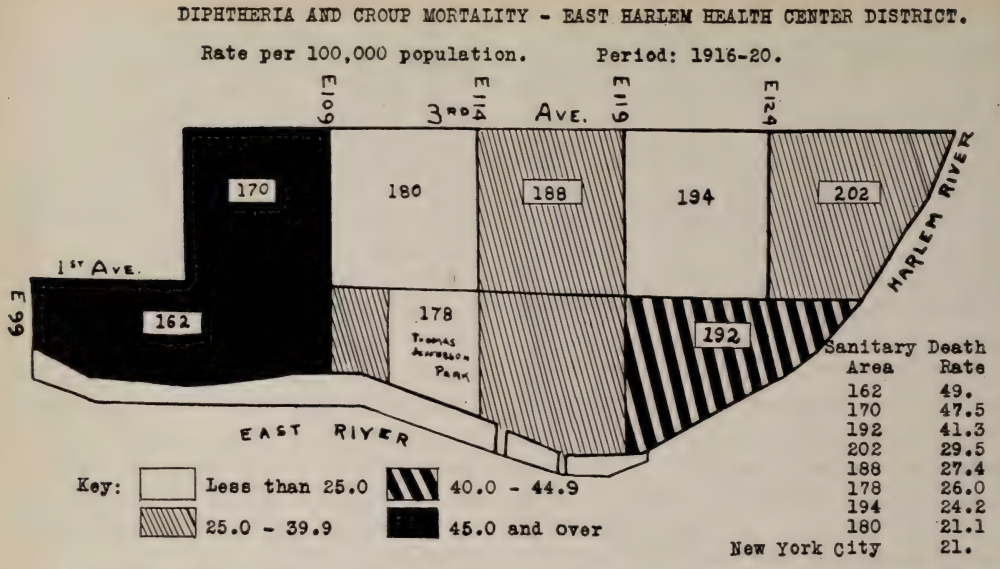
MYRA M. HULST

Statistician, East Harlem Health Center, New York City

THE system of health bookkeeping, as it has been aptly called, which is presented in this article, was planned and applied in the East Harlem Health Center, 345 East 116th Street, New York City. The Center was organized as a national health center demonstration by the American Red Cross, New York County Chapter; the New York City Department of Health, and twenty other agencies, all coöperating under one roof. From the very beginning, it was planned to work out a complete system of records, and if these worked successfully, to make them available to other institutions. Health centers are being widely established in this country and form an increasingly prominent part in the public-health movement, but there is as yet no plan for recording their activities in any comparable manner. This paper is offered as a basis for discussion in the hope that there may result therefrom a standard and comparable system of records for health centers.

The health bookkeeping here described has been carried on with the advice of the Health Center's director, Kenneth D. Widdemer, and of an advisory statistical committee of which Dr. Louis I. Dublin is chairman. Other members of the committee are Bailey B. Burritt, Dr. William H. Guilfoy, Dr. Louis I. Harris, Dr. Philip Van Ingen, and Professor Robert E. Chaddock.

An important part of statistical work in health centers is the collection and interpretation of the vital statistics of the community. It will mean a great saving in health centers' work to show and to be able to apply facts about the relative importance of different causes of sickness and death in the community and subdivisions of its territory. In this way the health center is aware of the most serious causes of ill health against which there exists most urgent need to concentrate efforts for prevention. The death-rates for the following diseases have been secured from the



City Department of Health records for East Harlem for a five-year period previous to the opening of the center: typhoid, measles, scarlet fever, whooping cough, diphtheria and croup, influenza, cancer, poliomyelitis, organic heart disease, pneumonia, diarrhea and enteritis, Bright's disease, puerperal causes, accidents, and all other causes. These rates have been analyzed to show areas within the district where there are special disease problems. A comparison has been made of the rates for the district with those of the city as a whole; in smaller communities the rates can be compared with the average for similar types of communities. These statistics have been presented in a small leaflet and made available to organizations cooperating in the Health Center's work A series of maps of the district presenting these conditions in graphic form accompany the leaflet. The maps are shaded to show the relative prevalence of certain causes of deaths in the different areas of the district. (See illustrated map on diphtheria.)

A nursing organization of long standing in the district found on relating these figures on prevalence of disease to the amount of work done, that the area with the very highest death-rates was the district from which they had drawn the fewest of their cases. The result of such a revelation was that this organization added two nurses to this area and special educational and nursing work was started there.

In establishing a well-rounded program of infant welfare work, the health center should know the trend of infant mortality over a period of years. The infant mortality rates in East Harlem for a five-year period previous to the opening of the center were secured, and an analysis made of infant mortality by the principal causes of death. It was found that the outstanding causes of infant mortality were diarrheal diseases and pneumonia, and that such conditions as congenital diseases and infectious diseases were comparatively low. Stimulated by these facts, additional work and special educational activities have been started to bring down these high death-rates during the season of the year when these particular causes are at their height.

The population by age groups for the district and its areas has been obtained from the last census. The population figures according to the following age groups are available: under 1 year, (also under 2 years for infant welfare work),

1-4 years, 5-9 years, 10-14, (also 6-16 years for school age), 15-19, 20-44, 45 and over. In starting a program for pre-school children these figures were used to show the number of children in this group in the district. It is important to know the distribution by nationality in a district like the East Harlem where 44 per cent of the population have been born in a foreign country and another 47 per cent are of foreign parentage, one or both parents having been born abroad. The area which has the highest tuberculosis rate in East Harlem has also the largest proportion of Irish and colored population.

Such statistics as have been described above have served the Health Center very effectively in the promotion of different activities. This has been especially true in the promotion of its educational program. The presentation of these facts has aroused the leaders of the community and organizations interested in public welfare, such as churches, settlements, and schools, and has brought to them a realization of the health needs of their community. These organizations, awakened to preventable diseases and deaths occurring among them, are inviting and promoting health classes, lectures, and talks, which are reaching an increasingly large proportion of the people.

A second part of the statistical work of the center is the record- and report-making. The work on record forms and the statistical system fortunately was begun during a period previous to the opening of the East Harlem Health Center. During this preliminary period the records and reports of other existing health centers were studied, together with those of all organizations that were to become a part of the Center. In making up the forms here described the aim has been to select and use only the more comparable and standard items of information. As many as possible of these items have been taken from existing records and reports, and an effort has been made to select those most important for the accounting of the Health Center activities and to simplify the whole rather than to add new material. This system by which the Health Center statistics have been gathered and tabulated has stood the test of time and actual working. It has been found to make available in a systematic and orderly way a large body of important facts about the Health Center's activities.

Direction Slip—The first form in the series is the direction slip (Form No. 1). This is filled out and given to each applicant at the information desk by the information clerk or telephone operator. Such registration brings about orderliness in the Health Center and facilitates finding the right service. Every one, with the exception of those attending regular classes and lectures, comes to the information desk. Here the needs of the individual are found out and he receives a direction slip to the proper service. These slips are made up in small pads with every other slip for a carbon duplicate on a different colored paper. The slips are also numbered consecutively thus showing the number of visits made to the Center; for example, a slip numbered 6000 would represent the six-thousandth call for service to the Health Center. This consecutive numbering of the slips makes it possible to calculate at any time about how many visits have been made to the Health Center to date. The slips also contain abbreviations which represent all agencies and services in the Center, and those to which the person is directed are checked at the desk. In cases where an agency has several different services, numbers have been used to represent them; for example: A. R. C.—1, 2, 3, 4, 5, stands for American Red Cross, 1. Nutrition Clinic, 2. Oral Hygiene, 3. Dental Operative, 4 and 5. blank for new services which may be added.

7943

Name Carmela Lucia
Room No. No.

~~D. of H. P. D.~~
1 2 3 4
N.C. D. of H., C. H.
(New Case) 1 2 3 4
M. C. A.
H. S. S.
Cardiac Cl.
Psych. Cl.
Gen. Med. Cl.
O. Therapy S.

Date 4/11/22
Address 324 E. 115 St. Fl. 4
Room No. No.

A. R. C.
1 2 3 4 5
A. I. C. P.
U. H. C.
~~C. O. S.~~ A3794 (Case number)
C. C.
A. S. H. A.
A. A. C. C.
N. Y. TB. A.

FORM NO. 1 (DIRECTION SLIP)

The applicant receiving the direction slip presents it to the agencies to be visited as indicated thereon, the duplicate being retained at the information desk. In case the agency finds that the person has been misdirected, this is noted on the slip by the agency and the redirection given. Very often the client, because of requiring different kinds of service or treatment, may be referred from one agency to another during the same Health Center visit. This can be noted by the agency without the applicant's return to the information desk. Case numbers are written on the slips by agencies using such numbers and the direction slips collected during the day are returned to the information desk.

Day Book and Tabulation.—Directors of health centers and those interested in promoting their activities will want to know to what extent the various services are being used by the community. A very important index of the usefulness of the activities is the record of attendance. The basis for taking the attendance is the daily direction slip. These are counted each day to find out the total attendance at the Health Center. The daily record can be readily calculated by taking the last number of the preceding day's slips and subtracting it from the last number of the current day's slips, and adding to this the attendance at classes and lectures, etc., to which direction slips are not given. A count can also be taken from the slips of the number of persons receiving service from each of the different agencies. A convenient form in which to keep a classified record of the daily attendance has been found to be the day book (Form No. 2), which, as used in the East Harlem Health Center, is a large loose-leaf note book with columnar ruled pages. The daily entries are made in this book and it forms a convenient reference, which shows at any time how each service is progressing in the number of calls that are coming to it. Although the day book is an elementary form of record, it is valuable in that it indicates the progress from time to time in each service; and the calls received can readily be compared in corresponding weeks or months. In this way decreases or increases will show up in the Health Center's activities, and the director can ascertain at a glance the weaknesses in the services.

The activities in the Health Center have been divided into four different

FORM NO. 2 (CONDENSED FROM DAY BOOK)

SERVICE VISITS MADE TO EAST HARLEM HEALTH CENTER

Month of.....192....

Date	Total Visits to H. C.	CLINICS				NURSING			Family Welfare		EDUCATIONAL		
		Total Clinic Visits	Cardiac	Psychiatric	Similarly Other Clinics	Total Nursing Visits	Henry St. Visiting Nurse Service	Similarly Other Services	Total Family Welfare Visits	C. O. S. & Similarly Other Agencies	Total Education Visits	Lectures	Exhibits
1													
2													
3													
4													
.....													
..... 31													
Total													

types, for convenience in reports, namely, clinics, nursing, family welfare, and educational. This classification has been found in the main to work well for a general grouping of services.

In the day book the visits to each of these types are totaled so that the distribution of visits made to the Health Center is brought out. By this arrangement the trend of activities in the Health Center will be shown: for instance, in the East Harlem Health Center since its opening October 1, 1921, 68 percent of the visits in the Center have been made to clinics. Such percentages will indicate types of work which are not being adequately developed in the health center. At the end of the month the columns in the day book are totaled and from this a monthly statement can be made. The following shows a six months' summary statement of services rendered in the Health Center.

TOTAL NUMBER OF VISITS MADE TO EAST HARLEM HEALTH CENTER BY PERSONS FOR WHOM SOME SERVICE WAS RENDERED

October 1, 1921, to March 31, 1922

(Population of E. H. H. C. district, 112,199)

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Total	Percent of all Visits
To clinics	2885	3226	3656	3767	3624	4766	21,924	68.8
To family welfare agencies	512	574	542	636	525	529	3,318	10.4
To other health agencies	169	376	282	292	177	252	1,548	4.8
To educational agencies	255	789	1293	1041	817	911	5,106	16.0
Total	3821	4965	5773	5736	5143	6458	31,896	100.0

Graphic charts can be made from the tabulation in the day book which show the trend of the work. A large wall chart with colored tape, representing the growth of services rendered in the whole Center and to the separate services makes an instructive illustration.

Central Record File.—A simple record card is kept in the central file, of each person who is given any service by the Health Center. (See Form No. 3.) Every organization which is working in the Center keeps its own records with its specialized data, so that only the sim-

4708
Name—Lucia, Carmela Address—324 E. 115th St., Fl. 4

Case No.	Agencies	Dates of Visits
A-3794.....	C. O. S.....	Apr. 11 .....
.....	.....	.....
.....	.....	.....
.....	D. of H. P. D.[3]	Apr. 11, May 2, 25 .....
.....	.....	.....
.....	.....	.....
.....	Gen. Med. Cl.	May 30 .....
.....	.....	.....

FORM NO. 3 (CARD FOR CENTRAL RECORD FILE)

plest facts for the identification of the individual need be kept in the central record. Although the day book gives the number of visits paid to the Center, it does not show the number of individuals reached. The items transcribed to Form No. 3 are taken from the direction slips. The cards are filed in alphabetic order and each new record numbered. From the record numbers can be ascertained how many individuals have come to the Center during the month who had not been there previously. They represent also the number of individuals in the community which the Health Center is reaching. On each individual record card are transcribed the dates of visits made and the agency to which these visits are made. Thus the record gives every agency that has had any contact with the individual.

At the end of a year's period of work, the record cards should be tabulated as to certain important items of information. The question as to what extent different districts in the community have been using the health center can be answered by a tabulation of addresses on the record cards. The district units may be streets, blocks, or other geographical areas suited to the type of community. With these facts can be discovered the proportionate use which these areas are making of the health center in comparison with their known health needs, as brought out by statistics on the prevalence of disease and death.

Monthly Report and Summary.—As already stated, the Health Center for which this record system was planned is made up of more than twenty health, family welfare and allied organizations. Although few other health centers will have to gather their statistical facts from as many different organizations, even the simplest one-room health center will have several activities such as clinics, classes, and other services which will bring similar problems to them in greater or less degree. The first step in making out a periodical report must be the selection of comparable and standard units of information. Organizations or services doing the same general type of work will need to use terms which have some common meaning and which lend themselves to comparison of results. It was found in this experiment that in many of the organizations the reports which they usually made out could not be compared with those of other similar organizations due to lack of uniformity in the terms used and the dissimilarity of items of information reported. Based on a study of the existing reports of the various organizations coöperating in this Health Center, three types of report forms have been devised which follow the general division used in the day book, namely, nursing, clinic and family welfare. These reports are prepared by the respective agencies from data collected by them and are submitted monthly to the Health Center. The re-

port Forms Nos. 4-A, 4-B, and 4-C* are a first attempt to bring together some common form of report for the same type of work in the Health Center, and are therefore subject to revision as the work of the Center progresses. An endeavor will be made in these paragraphs to point out why certain items of information have been chosen and to what uses the collected information can be put.

In all types of reports as many items as possible have been based upon the same standards. For example, in each type of report the number of visits outside the Center, that is, the number of home visits, follow-up clinic visits, and all other visits, have been asked for. These items, when compiled from all the agencies or services, give the total visits in the community made by the Health Center nurses and other workers. This information, with the attendance in the Health Center, gives a fairly complete account of the amount of service rendered by the Center. The item of age periods, which appears on the forms above referred to, may need to vary according to the general field of work which the Center has chosen. For all reports in this Center these periods have been so distributed that they may be combined into the following groups: number of children under 5 years of age, children from 5 to 16 years (school age), all ages over 16 years. In clinics doing specialized work these ages have been further subdivided; for example, in work of the baby health station, the period under 2 years of age has been used. These statistics on the work done for various ages can be related to the distribution by ages of the population for the district. Another important relation can be brought out by comparing the amount of actual work done by the Center with the health needs of the district, as shown by the vital statistics for the various ages of the population.

In the nursing reports, the number of nursing visits made according to the disease are asked for. This information will be used to show, in the case of certain diseases in which the Health Center is especially interested, what ratio exists between the number of visits made and the particular disease. These figures will help in pointing out diseases which are receiving too few or an unduly large number of visits according to the usual standards of nursing. Measures can then be used to bring about a better proportion of visits.

It is of interest and practical importance to the director and administrators of the Health Center to know what sources are sending people to the Center. This information is secured in each report under items of "number of persons referred by." These facts will help to show what cöoperation the Health Center is receiving from outside organizations, such as schools and settlements. The information from "number referred by family, neighbor, self" will show to some degree in what favor the Center is held among the people of the community. Such information may point out the need for further advertising of the services to the community which the Center is able to render or to make known its resources through a wider educational campaign.

The facts on the work of the various services as given in the monthly report forms just described are incorporated in a simple summary report. This has been done for a six months' period at present in the East Harlem Health Center and will be carried forward later to a period of a year. A sample of certain items summarized on new clinics is given here.

With health centers in an experimental stage and usually in need of additional financial support, it is of prime importance that they be able to present interesting and accurate information about their accomplishments. Health

*These forms are too long for reproduction here, but copies of them may be obtained by those interested from the East Harlem Health Center, 345 East 116th Street, New York City.

NEW SERVICES IN THE EAST HARLEM HEALTH CENTER

(Six months' summary, from date of opening, September 1, 1921, to February 28, 1922)

TABLE 1. SOURCE OF NEW CASES

	Total	Gen. Med.	Cardiac	Psychiatric	Nutrition	Oral Hygiene	Dental
Relief or health agency in Health Center	378	126	18	13	33	128	60
Family, neighbor, self	164	85	5	..	..	54	20
Schools and settlements	392	42	5	4	31	224	86
Physicians	4	2	..	..	..	1	1
All others	69* 27	2	15	1	9	..	..
Total visits	1034	(257*) (69*)	43	18	73	407	167
Revisits	638	78	15	22	259	0	264
Total Clinic Visits	1672	404	58	40	332	407	431

*Also 69 teachers in the district have been given examination by the General Medical Examination Clinic.

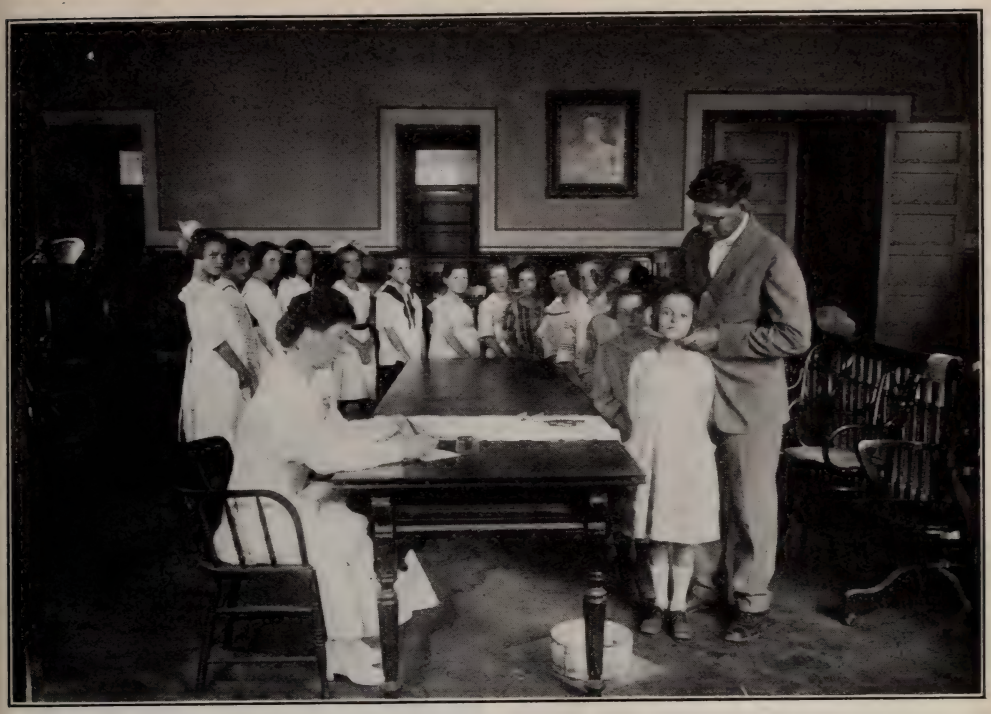
centers will find it of utmost value to be able to give in their reports and publicity work to the community and the center's supporters a clear idea of their usefulness. Such facts as have been here described should form a ready store of information about the services rendered. By discriminating use of vital statistics the outstanding health needs of the community can be clearly presented. As time goes on, the continuous vital records and service records will show the relative results accomplished and relative efficiency of the various services.

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HOW ONE RURAL COUNTY SECURED AN EFFICIENT HEALTH DEPARTMENT

THE development of a complete health service for a rural county in the short space of three years is an achievement worthy of notice. This is the record of the Health Department of Arlington County, Virginia, under the leadership of Dr. J. W. Cox. This record is all the more remarkable when it is realized that previous to the establishment of the Health Department there was a total lack of health service in this county, and early efforts met with more than the usual amount of reactionary opposition. The credit for the inauguration of this work belongs to the United States Public Health Service, which placed Dr. Cox's services at the disposal of Arlington County for the purpose of demonstrating what can be accomplished under the direction of a trained leader.

The story of Dr. Cox's success is a thrilling one. Newspapers which at first refused to print Health Department news now demand, to the point of legal proceedings, this information for their readers. A group of physicians hostile to clinics has become a medical society heartily assisting in their operation. A county supervisor vetoing child welfare work for his district now presses the health officer to accept $5,000 to build and equip a baby health station for his part of the county. And, most important of all, an apathetic public, now organized through its women into a volunteer army of supporters and defenders of the Health Department, assures the continuance of this work indefinitely.



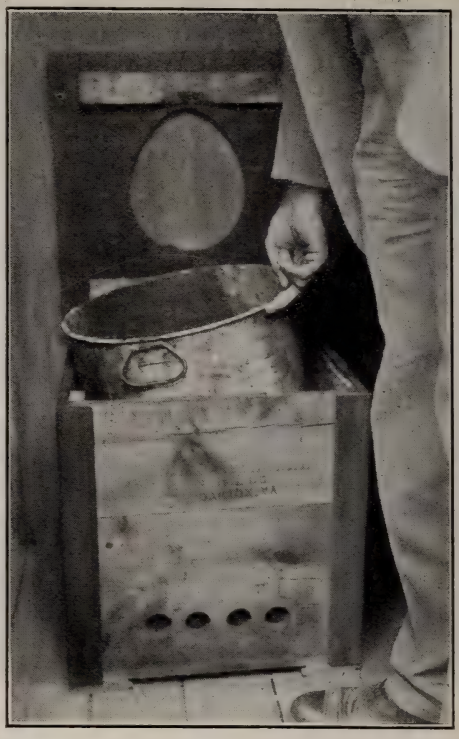
The health officer, the nurse, and the dentist unite to examine the school children of Arlington County every two years. In alternate years strenuous follow-up assures correction of the defects discovered. One remote one-room school has a record of 100% corrections, and several classrooms in the larger schools have equaled this record.



The school children themselves constitute the Junior Health Department. The boy and the girl junior health officer of each room make a daily inspection of their class-mates to determine observance of the health rules. The Junior Health Department reports weekly to the county health officer all births, deaths, and sickness that it knows of in the community. These reports have been of real value to the health officer.

These achievements of statesmanship were but the necessary preliminaries to a campaign of health protection for all. This campaign has made use of modern knowledge and experience in the health field. Even further than this, the health officer has appropriated ideas and methods from other fields to apply them to the solution of his problems. The accompanying pictures tell but a small part of the story.*

*A more extensive description of the work in Arlington County will be found in *Mother and Child* for June, 1922, under the title of "A Rural Health Job Well Done," by Homer N. Calver.



The Health Department has experimented with this type of pail closet which has no vent and is not screened. A small amount of gas tar is placed in each pail. This spreads over the surface of the liquid in the pail and further small amounts of gas tar are added from time to time in order to keep the film intact. There is practically no odor from this closet except the not unpleasant one of the gas tar which is apparently disagreeable to flies, for they do not enter the room where these closets have been installed.



When the law was secured requiring the installation of sanitary closets it was rigidly enforced. In this respect "education" was effected by process of law. The pail system is in use in Arlintgon County and the Health Department makes collections in a metal tank-wagon. Disposal is accomplished by plowing the contents of the tank into the ground. The fees from the householders for the collection service support it and pay a dividend.

REPORT OF THE COMMITTEE ON SALARY STANDARDS

To be presented for action at the Fifty-first Annual Meeting of the American Public Health Association, Cleveland, Ohio, October, 1922

In the latter part of May, 1921, the American Public Health Association appointed the following Committee on Salary Standards:

Dr. Carroll Fox, United States Public Health Service, Chairman.

Dr. S. J. Crumbine, State Health Officer of Kansas.

Dr. J. A. Ferrell, International Health Board.

Dr. J. R. Phelps, U. S. Navy Medical Corps.

Mrs. Maud Wood Park, National League of Woman Voters.

James A. Tobey, National Health Council, Secretary.

The purpose of this Committee was to investigate the present compensation of sanitarians and make recommendations as to minimum standards for salaries of public-health workers. In accordance with the instructions of the Committee, the secretary has, therefore, collected data on the salaries of sanitarians. The figures regarding the state health departments were obtained by a questionnaire, to which replies were received from all the state health officers except those of Georgia and Vermont. Data on municipalities for 1922 were derived from the Committee on Municipal Health Department Practice of the A. P. H. A. Other sources are cited in the references. All salaries are given "per annum," except a few marked "M," which are monthly.

The report of the committee is herewith presented in two parts: first, statistics concerning salaries;* second, conclusions and recommendations.

I. Existing Salaries of Sanitarians

A. In the Federal Government

1. *The U. S. Public Health Service, Army and Navy*—The present (May, 1922) salaries of officers in the U. S. Public Health Service are as follows:[1]

Table 1

Grade	Pay authorized by act of Aug 14, 1912, with increase by act of May 18, 1920					Commutation. Quarters, Heat & Light	Total Allowable Maximum Pay and Allowances
	Base pay	After 5 years' service	After 10 years' service	After 15 years' service	After 20 years' service		
Surgeon General.	$6,000	.....	.....	.....	.....	$1,501.30	$7,501.30
Assistant Surgeon General	4,600	$5,000	$5,400	$5,600	$5,600	1,337.41	6,937.41
Senior Surgeon ..	4,100	4,450	4,800	5,100	5,100	1,162.61	6,262.61
Surgeon	3,840	4,140	4,440	4,740	4,840	985.94	5,825.90
Passed Assistant Surgeon	3,120	3,360	3,600	.....	.....	808.53	4,408.53
Assistant Surgeon	2,600	.....	.....	.....	.....	626.41	3,226.41

These amounts are the same as in the corresponding grades of the Army and Navy, and so would also represent the salaries of physicians in the Army and Navy Medical Corps.

There is now a bill before Congress (H. R. 10734), which passed the House on May 12 and the Senate on May 22, 1922, which would create a new schedule of "base pay" for officers of the Army, Navy and Public Health Service.[2]

*In some cases tables given in this report have been condensed for purposes of publication in the Journal, although all essential points are covered. More complete data are on file in the Association office and may be obtained upon application by persons interested.

2. *The Children's Bureau*—Annual salaries in the Children's Bureau of the U. S. Department of Labor are as follows:[3]

TABLE 2

Chief	$5,000
Assistant Chief	2,400
Experts on Sanitation, Industrial Service, Social Service, Statistics, Editor, each	2,000
Special Agents	$1,200 to 1,800

Salaries for carrying out the provisions of the Federal Maternity and Infancy Bill are restricted to one at $3,600, one at $3,500, one at $3,000 and the remainder not to exceed $2,000.[4]

3. *Health Section of the Bureau of Indian Affairs*—

TABLE 3

Chief Medical Supervisor	$3,000
Medical Supervisor	2,250
Special Physicians	1,800
Special Physicians	1,600
Special Traveling Field Nurses	840
Traveling Field Dentists	1,500

4. *The Lehlbach Reclassification Bill.* There is at present a bill (H. R. 8928) before Congress which provides for a standard salary scale for government employees. The bill puts all civilian em-employees of the government into the following eight groups: professional, subprofessional, clerical, institutional, custodial, inspectional, police and criminal investigation service, and fire service. Under the first group are expressly included the following callings: bacteriology, biology, chemistry, child hygiene, dentistry, dietetics, engineering, medicine, pathology, pharmacy, social economics, statistics, and therapeutics. The professional group is then arranged in six grades. The first is a junior one for those performing the simplest kind of professional work, and has salaries of $1620, $1740, $1860 and $1980. Grade two would include those classes of positions, the duties of which are to perform under general direction "assigned professional work requiring professional training and previous experience but not the exercise of independent judgment." The compensation in this grade would be $2100, $2280, $2460, and $2640. Grade three includes those who perform independently or with associates from the lower grades responsible work requiring extended training and considerable successful previous experience. Salaries here range from $2820 to $3540. Grade four is that in which independent and highly expert professional work would be performed, or the administration of a minor division of a large organization or a major division of a small organization. Salaries would be from $3720 to $4620. Grade five includes those acting as assistant head of a large professional organization, administrative head of a major division, head of a small organization, or consulting specialist. Here the salaries would be from $4860 to $5460. Finally, grade six includes the technical and administrative heads of a major professional or scientific bureau. The compensation in this grade is from $5400 to $6600.

This bill has passed the House and in the Senate has been referred to the Committee on Appropriations, having been reported by the Committee on Civil Service.[5]

B. *In National Voluntary Agencies*

An analysis of the salaries of sixty-two executives in the ten leading national voluntary health agencies in the United States shows the following range (1922):

TABLE 4

	Number	Per cent
$10,000	1	1.7
8,000	4	6.4
7,500	2	3.2
7,000	2	3.2
6,000	7	11.4
5,500	2	3.2
5,000	4	6.4
4,000-$4,500	6	9.7
3,000- 3,800	16	25.8
2,000- 2,700	16	25.8
1,800	2	3.2
	62	100.0

Average, $4,242

The rate of basic pay adopted by the International Health Board of the

Rockefeller Foundation for its regular staff members is as follows:

TABLE 5

	Per Month	Per Year
First six months	$208.33	$2,750
Second six months	250.00	
Second year		3,500
Third year		4,000
Fourth year		4,500
Fifth year		5,000
Sixth year		5,500
Seventh year		6,000
Eighth year		6,500

Note. Commutation is allowed for foreign service, which amounts to ten per cent of basic pay, plus a variable percentage of the necessary expenditures at a foreign post for board, lodging, and laundry. A limited number of regional directors and central executives receive higher compensation, ranging to $10,000 or more.

C. In the States

1. The results of the questionnaire to state health officers are summarized in the following tables. It will be noted that the compensation of state health officers in 1922 ranged from $10,000 per annum to $1,000. These figures are compared in the summary with data collected in 1920 by the secretary of the Conference of State and Provincial Health Authorities of North America.[6]

TABLE 6. SALARIES OF STATE HEALTH OFFICERS

State	Population 1920	Executive Officer 1922	Amount Salary per 1000, 1922
Pennsylvania	8,720,017	$10,000	$1.14
New York	10,385,227	8,000	.77
Massachusetts	3,852,356	7,500	1.98
Ohio	5,759,394	6,500	1.13
Illinois	6,485,280	6,000	.93
Wisconsin	2,632,067	6,000	2.28
Minnesota	2,387,125	5,400	2.26
Montana	548,889	5,000	9.12
Washington	1,356,621	5,000	3.68
New Jersey	3,155,900	5,000	1.58
Alabama	2,348,174	5,000	2.14
North Carolina	2,559,123	5,000	1.95
Louisiana	1,798,509	5,000	2.78
Mississippi	1,790,618	5,000	2.79
West Virginia	1,463,701	4,800	3.28
Missouri	3,404,055	4,800	1.41
Oregon	783,389	4,600	5.87
Michigan	3,668,412	4,500	1.25
California	3,426,861	4,500	1.31
Virginia	2,309,187	4,200	1.82
Maryland	1,449,661	4,000	2.76
Kentucky	2,416,630	4,000	1.66
Connecticut	1,380,631	4,000	2.90
Kansas	1,769,257	4,000	2.26
New Mexico	360,350	4,000	11.10
South Carolina	1,683,724	4,000	2.38
Maine	768,014	4,000	5.21
Nebraska	1,296,372	4,000	3.09
Indiana	2,930,390	4,000	1.37
Dist. of Columbia	437,571	4,000	9.14
Wyoming	194,402	4,000	20.58
Utah	449,396	4,000	8.90
Oklahoma	2,028,283	3,600	1.77
Idaho	431,866	3,600	8.34
Arkansas	1,752,204	3,600	2.05
Rhode Island	604,397	3,500	5.79
Tennessee	2,337,885	3,500	1.50
South Dakota	636,547	3,200	5.03
Iowa	2,404,021	3,000	1.25
Florida	968,470	3,000	3.10
New Hampshire	443,083	3,000	6.77
Texas	4,663,228	3,000	.64
Nevada	77,407	2,500	32.30
Colorado	939,629	2,000	2.13
Delaware	223,003	2,000	8.97
Arizona	334,162	1,000	2.99

Summary

Average salary, 1920	$4,040
Average salary, 1922	4,453
Average salary per 1,000 population, 1920	$3.41
Average salary per 1,000 population, 1922	4.35
Number of increases in 1922 over 1920	14
Number of decreases in 1922 over 1920	2

Salary (1922)	Number	Percent
$10,000	1	2.2
8,000	1	2.2
7,500	1	2.2
6,000-6,500	3	6.5
5,000-5,400	8	17.3
4,000-4,800	18	39.2
3,000-3,600	10	21.7
2,000-2,500	3	6.5
1,000	1	2.2
Total	46	100.0

TABLE 7. SUMMARY OF SALARIES, CHIEFS OF DIVISIONS, STATE DEPARTMENTS OF HEALTH

	$5,000 and up	$4,000-5,000	$3,000-4,000	$2,000-3,000	Under 2,000	Total Reporting	Average
Child Hygiene	1	7	9	12	2	31	$3,385.48
Communicable Diseases	0	11	8	4	1	24	3,445.84
Engineering	3	9	11	12	2	37	3,219.89
Food and Drugs	1	1	8	6	1	17	2,929.41
Laboratory	1	10	15	7	1	34	3,356.17
Vital Statistics	1	1	5	6	5	18	2,412.25
Venereal Diseases	2	4	16	7	4	33	3,057.57
	9	43	72	54	16	194	

D. *In Counties*

Salaries for county health officers in the states with which the International Health Board is coöperating in county health work during 1922 range as follows:

TABLE 8

Alabama	$2,700, 3,000, 3,200, 3,500	9 counties
Indiana	3,000	3 counties
Kansas	3,000	6 counties
Kentucky	3,000	6 counties
Louisiana	3,000	5 counties
Mississippi	3,000	7 counties
Missouri	2,750, 3,000, 4,200	6 counties
New Mexico	3,000	8 counties
South Carolina	2,750	6 counties
Tennessee	2,500	5 counties
Texas	2,700	4 counties
Virginia	3,000	4 counties
West Virginia	3,000, 3,600, 4,000	4 counties
Total		73 counties

E. *In Municipalities*

1. Data of 1918.—In 1918 Dr. L. K. Frankel, who was then president of the American Public Health Association, collected statistics from 417 municipal health officers.[7] He found that 60% of these health officers received less than $25 a week. Of the total, only 36.7% were full-time health officers and of these, 25% received less than $25 per week, 63.3% were part-time officers and 80% of these received under $25 per week. The average salary for the entire group was $1,383 per annum. The minimum salary was $50 and the maximum salary $7,500. The minimum and maximum salaries for cities having a population of 75,000 to 100,000 and in cities having a population of 100,000 to 250,000 were the same, the minimum being $1,500 and the maximum $4,000.

2. Data of 1920. In September, 1920, Dr. J. A. Kappelman, of Canton, Ohio, collected statistics concerning salaries of health officers in 115 cities. The average was $2,727.85 per annum. The range of salaries may be summarized as follows:

TABLE 9

Salary	Number	Percent
$7,500	1	.8
6,000	1	.8
5,000	6	5.3
4,000-4,800	9	7.9
3,000-3780	31	26.9
2,000-2,800	37	31.2
1,000-1,900	25	21.8
300- 600	5	4.3
Total	115	100.0

3. Data from Study Made in 1921.—The First Report of the Committee on Municipal Health Department Practice of the American Public Health Association contains the following summary of salaries of health officers, from which we quote:[8]

The largest cities, those having more than 500,000 population, as we should expect, pay proportionately higher salaries than do the smaller cities. Thus we find that 75 per cent of the larger cities for which we have data pay their health officers over $5,000 a year; 60 per cent of the cities of population of 250,000 to 500,000 pay their health officers $5,000 a year or more, and 17 per cent of the last group of cities pay their health officers $5,000 or more for an annual salary. In the first group of cities the range is from $2,200 for a part-time health officer to $10,000 for a full-time officer. In half the cities of this group the salary is $7,000 or over.

In cities of the second group, the range is from $1,200 for a part-time health officer to $6,000 in one city, 18 cities paying $4,000 or over, and 18 paying less than $3,000, the health officers, however, being on part time except in two instances.

The following table indicates the detailed situation in the 78 cities for which data were available.

TABLE 10. NUMBER OF CITIES CLASSIFIED BY WHOLE OR PART-TIME SERVICE AND SALARY OF HEALTH OFFICER

Cities of population	Total Cities	Whole Time	Part Time	$7,500 and over	$5,000-$7,000	$3,500-$4,999	Under $3,500
500,000 and over	12	11	1	6	3	2	1
250,000 to 500,000	10	9	1	0	6	4	0
Under 250,000	54	31	23	0	9	17	28

The Committee on Municipal Health Department Practice has also turned over to the Committee on Salary Standards more specific data, which we have arranged in the following table:

TABLE 11

SALARIES OF CITY HEALTH OFFICERS

City.	1921.	Population, 1920.	Salary per 1,000 pop.
Philadelphia, Pa.	$10,000	1,823,779	$ 5.48
Chicago, Ill.	10,000	2,701,705	3.70
Detroit, Mich.	7,500	993,678	7.50
New York, N. Y.	7,500	5,620,048	1.33
San Francisco, Cal.	7,500	506,676	12.82
Boston, Mass.	7,500	748,060	10.02
Pittsburgh, Pa.	7,000	588,343	11.89
Newark, N. J.	6,500	414,524	15.68
Buffalo, N. Y.	6,000	506,775	11.83
Providence, R. I.	6,000	237,595	25.25
Cincinnati, Ohio	6,000	401,247	14.95
Milwaukee, Wis.	6,000	457,147	13.12
Grand Rapids, Mich.	5,900	137,634	42.86
Flint, Mich.	5,600	91,599	61.13
Bridgeport, Conn.	5,000	143,555	34.82
Indianapolis, Ind.	5,000	314,194	15.91
Minneapolis, Minn.	5,000	380,582	13.13
New Orleans, La.	5,000	387,219	12.91
Norfolk, Va.	5,000	115,777	43.18
Omaha, Neb.	5,000	191,601	26.09
St. Louis, Mo.	5,000	772,897	6.48
Seattle, Wash.	5,000	315,312	15.85
Syracuse, N. Y.	5,000	171,717	29.11
Canton, Ohio	5,000	87,091	57.41
Jacksonville, Fla.	4,800	91,558	52.42
Houston, Texas	4,800	138,276	34.70
Kansas City, Mo.	4,800	324,410	14.79
Birmingham, Ala.	4,500	178,806	25.16
Dallas, Texas	4,400	158,976	27.67
Baltimore, Md.	4,250	733,826	5.79
Washington, D. C.	4,000	437,571	9.14
St. Paul, Minn.	4,000	234,698	17.04
Richmond, Va.	4,000	171,667	23.30
Hartford, Conn.	4,000	138,036	28.97
Denver, Colo.	4,000	256,491	15.59
Dayton, Ohio	4,000	152,559	26.21
Savannah, Ga.	4,000	83,252	48.04
Akron, Ohio	3,800	208,435	18.23
Columbus, Ohio	3,780	237,031	15.94
Oklahoma City, Okla.	3,600	91,295	39.43
Los Angeles, Cal.	3,600	576,673	6.24
Nashville, Tenn.	3,600	118,342	30.42
Albany, N. Y.	3,500	113,344	30.87
Elizabeth, N. J.	3,500	95,783	36.54
New Haven, Conn.	3,300	162,537	20.30
Atlanta, Ga.	3,300	200,616	16.44
Des Moines, Iowa	3,300	126,468	26.09
Salt Lake City, Utah.	3,300	118,110	27.94
San Antonio, Texas.	3,300	161,379	20.44
Fall River, Mass.	3,000	120,485	24.89
Kansas City, Kan.	3,000	101,177	29.65
Louisville, Ky.	3,000	234,891	12.77
Memphis, Tenn.	3,000	162,351	18.47
Reading, Pa.	3,000	107,784	27.83
Tacoma, Wash.	3,000	96,965	30.93
Erie, Pa.	2,860	93,372	30.63
Worcester, Mass.	2,800	179,754	15.57
Springfield, Mass.	2,800	129,614	21.60
Schenectady, N. Y.	2,600	88,723	29.30
Scranton, Pa.	2,500	137,783	18.14
Lawrence, Mass.	2,500	94,270	26.51
Duluth, Minn.	2,400	98,917	24.26
Cambridge, Mass.	2,400	109,694	21.87
Lowell, Mass.	2,306	112,759	20.45
Youngstown, Ohio	2,280	132,358	17.22
Trenton, N. J.	2,250	119,289	18.86
Cleveland, Ohio	2,200	796,841	2.76
Toledo, Ohio	2,100	243,164	8.63
Camden, N. J.	2,000	116,309	17.19
Fort Worth, Texas	1,800	106,482	16.90
Rochester, N. Y.	1,724	295,750	5.82
Paterson, N. J.	1,560	135,875	11.48
Average	$4,188		

SUMMARY

Salary	Number	Per cent
$10,000	2	2.7
7,000 to $7,500	5	6.9
6,000 to 6,500	5	6.9
5,000 to 5,900	12	16.7
4,000 to 4,800	13	18.1
3,000 to 3,800	18	25.1
2,000 to 2,860	14	19.5
1,560 to 1,800	3	4.1
Total	72	100.0

The following table shows in summary the salaries of the directors of various bureaus and divisions in city health departments:

TABLE 12. SUMMARY OF SALARIES, DIRECTORS OF DIVISIONS OR BUREAUS, CITY HEALTH DEPARTMENTS

	$5,000 and up	$4,000-5,000	$3,000-4,000	$2,000-3,000	Under 2,000	Total Reporting	Average
Communicable Diseases	3	3	12	16	13	47	$2,778.29
School Hygiene	2	3	4	5	11	25	2,460.40
Laboratory, Chemist or Bacteriologist	2	2	15	23	17	59	2,540.96
Food and Dairies	0	2	8	28	15	53	2,301.73
Sanitary Inspection	0	4	6	21	23	54	2,316.16
Vital Statistics	1	1	5	11	22	40	2,115.55
Public-health Nursing	0	0	0	3	14	17	1,681.17
Totals	8	15	50	107	115	295	

The U. S. Public Health Service also presented data on health officers' salaries in 81 cities of 70,000 population or over in 1921, before the Congressional Committee on the Readjustment of Service Pay (p. 436).

4. The Ohio Plan.—In 1919 the State Civil Service Commission of Ohio sent out a prospectus regarding positions as district health officers in accordance with a law which had been passed (and has since been repealed). The districts comprised 14 municipalities having populations of 25,000 or more, and 88 general districts.

The salaries, as shown in the accompanying table, were based on the age, experience, training, and technical knowledge of the applicant.

TABLE 13

SALARY RATES AND REGULATIONS GOVERNING THE COMPENSATION OF DISTRICT HEALTH COMMISSIONERS

	Rate A	*Rate B*	*Rate C*
Grade I	First 3 years $6,000	3-6 years $6,600	7 years and over $7,200
Grade II	First 3 years $5,000	3-6 years $5,500	7 years and over $6,000
Grade III	First 2 years $4,000	2-4 years $4,400	5 years and over $4,800
Grade IV	1st year $3,000	2nd year $3,300	3 years and over $3,600
Grade V	1st year $2,000	2nd year $2,200	3 years and over $2,400

In Grades V and IV incumbents shall advance from the lower to the next higher rate within the same grade after one year of satisfactory service.

In Grade III incumbents shall advance from the lower to the next higher rate after two years of satisfactory service.

In Grades II and I incumbents shall advance from the lower to the next higher rate within the same grade after three years of satisfactory service.

F. Public Health Nurses

The following data have been compiled by the National Organization for Public Health Nursing concerning salaries of public-health nurses for the year 1921.[9] The National Organization for Public Health Nursing has also collected statistics relating to the year 1921 for salaries of nurses.

G. Summary and Comparisons

1. Salaries in the Army, Navy and Public Health Service vary from $2,600 to $6,000 per annum plus commutation. Those in other government bureaus engaged in health work seem to be much lower.

2. In the states, salaries of executive officers have increased somewhat in the last two years. They range from $1,000 to $10,000 a year, the average being $4,453. Nineteen states pay more than the average, twenty-seven less.

3. In seventy-three counties in thirteen states salaries are from $2,700 to $4,200, though most of them are $3,000 per year.

4. The salaries of municipal health officers show a wide variation. Of seventy-two cities of more than 100,000 population, the lowest amount was $1,560 for a part-time officer, $1,724 for a full-time official; while the highest salary paid is $10,000. The average is $4,188, which is lower than that of the state health officers. Thirty cities pay more than the average, forty-two pay less. It is interesting, however, to note that salaries of health officers are usually greater than those of police chiefs in the same cities.[10]

5. The salaries of chiefs of divisions and bureaus in both state and city health departments are, naturally, much less than those of the executive officers. The general average is somewhat over $3,000 per annum, with the amounts ranging from $1,000 to $7,000.

6. It is a notable fact that more high salaries are paid to persons in executive positions in national voluntary health

TABLE 14

NATIONAL ORGANIZATION FOR PUBLIC HEALTH NURSING

INQUIRY ON SALARIES PAID TO PUBLIC HEALTH NURSES IN THE UNITED STATES

STATE	STATE SERVICE				VISITING NURSING ASSOCIATIONS			MISCELLANEOUS		
	Director	Supervising Nurses	County Nurses	City and Town Nurses	Superintendents	Supervisors	Staff Nurses	City Health Depts.	Infant Welfare Societies	School Boards
Alabama	Y 3000	Y 1800	Y 1500–1800	Y 1500–2000			M 125	M 135		M 140
Arizona		M 150		M 150				M 125		M 125–175
Arkansas	Y 1900	Y 1500	Y 1500–1800	M 1200				M 100	M 125	M 100
Colorado			M 75– 150	M 75– 125						
Connecticut	Y 2700	Y 1800			Y 1800–3000	M 125– 135	M 90– 125	Y 800–1200		Y 800–1500
Delaware	Y 2400		M 125	M 125	Y 2200	M 125	M 85– 100		M 100– 125	Y 1200
Florida			M 135			M 150			M 125	M 125
Georgia	Y 2400	W 35– 40	M 125– 150	M 100– 125	M 150–200	M 150	M 100– 120	M 115– 150	M 125	M 115– 150
Idaho		Y 2000	Y 1800	Y 1500						Y 1500
Indiana	Y 2000	Y 1800	Y 1500–1800	Y 800–1800	Y 1500–2400		Y 780–1200	Y 960–1500	Y 960–1200	Y 900–1500
Iowa	Y 2500	Y 2000	Y 1500–1800	Y 1200–1600	Y 2500	Y 1800	Y 1200–1600	Y 1200–1600	Y 1200–1600	Y 1800–2280
Kansas		M 150	M 150– 175	M 100		M 175– 200	M 125– 150	M 125– 150		M 125– 200
Kentucky	M 200		M 125– 150	M 125– 150						
Louisiana	Y 2700		Y 1620–1800	M 85– 110						Y 1500
Maine	Y 2400		Y 1500–1800	Y 1500			Y 1200–1500	Y 1200		
Maryland	Y 1800		M 100– 150	Y 1200–2000		Y 1500	Y 1200–1400	Y 1200–1500	Y 1200–1400	
Michigan			Y 1400–1800	Y 1200–1800	Y 2400	Y 1680–1860	Y 1200–1680	Y 1400–1800	M 95	Y 1500–1800
Minnesota	Y 1800	Y 1800	Y 1500–2400	Y 1140–1500		Y 1500	Y 1350	Y 1200–1500	Y 1500	Y 1500–1800
Mississippi	M 175		M 150	M 150						
Missouri		Y 2200	M 125– 175	M 80 up						
New Hampshire		Y 1500–2000	Y 1300–1500	Y 1200–1500	Y 1200–1800		Y 900–1200	Y 1400	Y 1200–1500	Y 1200–1500
New Mexico	Y 2040		Y 1800	Y 1300–1500						Y 1300–1500
New York	Y 3250	Y 1500	Y 1200–1500	Y 780–2500	Y 1500–2400	Y 1500–2400	Y 900–1200	Y 1200–1800	Y 1200–1500	Y 780–1500
North Carolina	Y 2500	Y 1800	M 125	M 100– 135	Y 1800–2400		M 100– 135	M 100– 135		M 125
North Dakota	Y 2000		Y 1650	Y 1200						Y 1200
Ohio	Y 2740	M 145	Y 1500–2000	M 135– 175				M 120– 150	M 125– 150	M 125
Oklahoma	Y 2200		M 150	M 150				M 110– 150		
Oregon	Y 2700	Y 2400	Y 1500–1800	Y 1500–1800	Y 2400	Y 1800	Y 1320	Y 1320	Y 1430	Y 1320–2000
South Carolina	Y 3150	M 150	M 125– 150	M 125		M 150	M 125	M 120		M 89
South Dakota		M 200	M 150	M 175						M 150
Tennessee	Y 2200	Y 1800	M 125– 150	M 125– 150						
Texas	Y 3600	Y 2000	Y 1500–2400	Y 1500–2400	Y 1800–2400		Y 1080–1200	Y 1080–1200		Y 1200–1500
Utah	M 175									
Virginia	Y 2500	Y 2000	Y 1500	Y 1200–1500						
West Virginia	Y 2500	Y 2000	M 150	M 100– 175	Y 2000–2400	Y 2000–2400	M 100– 150			M 150– 175
Wisconsin	Y 2500	Y 2100	M 135– 165	M 110– 150						
Wyoming		Y 2000	Y 1800–2100	Y 1800						Y 1800

agencies than to health officials. The average of 62 salaries in 10 voluntary organizations is $4,242, which is higher than the average for municipal health officers but lower than that for state health officers.

7. While it is impossible to calculate the mean of the more than 25,000 salaries of sanitarians embraced in the scope of this report, with any significant result, it is estimated that it would fall between $3,000 and $4,000 and that the majority of the salaries would be less than the mean.

8. Comparison of the distribution of salaries of executives of national voluntary agencies and state, county, and municipal health officers (1922 figures) shows the following results (expressed in percentages):

TABLE 15

	Nat'l. Vol. Agencies Per cent	State Per cent	County Per cent	Municipal Per cent	Totals Number	Totals Per cent
$10,000	1.7	2.2	0	2.7	4	1.6
8,000	6.4	2.2	0	0	5	2.0
7,500	3.2	2.2	0	5.5	7	2.8
7,000	3.2	0	0	1.3	3	1.2
6,000-$7,000	11.4	6.5	0	6.9	15	6.0
5,000- 6,000	9.6	17.3	0	16.7	26	10.3
4,000- 5,000	9.7	39.2	4.1	18.1	40	15.5
3,000- 4,000	25.8	21.7	69.9	25.1	95	37.6
2,000- 3,000	25.8	6.5	26.0	19.5	52	20.6
1,000- 2,000	3.2	2.2	0	4.2	6	2.4
	100.0	100.0	100.0	100.0	253	100.0

II. CONCLUSIONS AND RECOMMENDATIONS

1. *Existing Salaries.*

The salary to be paid to a health officer depends upon a number of factors. Some of these are his training and experience, the population and type of place of which he is executive, his length of service, and, finally, economic conditions and the standard of living. The Committee believes that, in general, the present salaries paid to health officers are *too low* and that they are not commensurate with the scientific training, personality, and professional responsibility required.

The committee further believes that the tenure of office of health officers should be made more secure, based entirely on merit without political considerations, and that compensation for such office should be made more adequate in accordance with the following minimum standards:

2. *Recommendations*

a. Five thousand dollars should be the minimum salary received by a full-time qualified state health officer and from this figure it should increase up to not less than ten thousand dollars depending upon the population involved, industries, area, and the length of service of the executive.

b. With regard to the salaries of chiefs of divisions in the state health departments, the Committee believes that it is difficult to set definite standards. The salary depends upon numerous factors, such as the training, experience, length of service, personality, and general qualifications of the individual, and also upon the type of work, population of state, magnitude of problems, and salary of his superior. The Committee believes, however, that no salaries less than three thousand dollars should be paid in any state to chiefs of divisions, and that in most instances more than this should be paid, bearing in mind the factors outlined above.

c. No qualified county health officer should receive less than $3,000 a year.

d. Minimum salaries of qualified municipal health officers for full-time work should be as follows, according to population:

Population	*Salary*
1,500,000 and above	$10,000
1,000,000 to 1,500,000	7,500
750,000 to 1,000,000	7,000
500,000 to 750,000	6,000
100,000 to 500,000	5,000
50,000 to 100,000	4,000
25,000 to 50,000	3,500
10,000 to 25,000	3,000
Less than 10,000	2,500

The minimum salaries of qualified chiefs of divisions in municipal health departments should be approximately three-fifths of the above scale.

CARROLL FOX, M. D., *Chairman.*
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J. R. PHELPS, M. D.
MRS. MAUD WOOD PARK.
JAMES A. TOBEY, *Secretary.*

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(3) Senate Document No. 429 on Appropriations.

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HEALTH EDUCATION SECTION

The program chairman of the provisional Health Education and Publicity Section of the A. P. H. A., Mr. E. G. Routzahn, of the Russell Sage Foundation, 130 East 22d Street, New York City, wishes to announce that the assistance and advice of all members of the Section as well as of any others interested in health education work is earnestly solicited in preparation for the Cleveland meeting. While the program is well under way, it is sufficiently flexible to make room for other features, and in a peculiar sense, the program of this Section must be a composite of contributions from many members. Those having suggestions are urged to communicate with Mr. Routzahn at once.

Correction

Through an inadvertent error, the members of the Committee on Problems of Canning, whose names were appended to the report of the Committee published in the July issue of the Journal, page 593, are those for 1921-22 instead of those for 1920-21, who prepared the report in question. The names of Messrs. George M. Menge and H. W. Redfield should be omitted from the report as printed, and those of Alfred M. G. Soule and Joseph Race substituted. The other members of the Committee remain the same.

Contributors to This Issue

Owing to shortage of space, we have been compelled to omit the biographical sketches of contributors to this issue.

EDITORIAL SECTION

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SOCIAL WORK AND PUBLIC HEALTH

Without entering the present controversy of the elect over the aims, philosophy, and professional status of social work, the Journal may be pardoned for calling attention to a fact which was strikingly in evidence at the forty-ninth annual meeting of the National Conference of Social Work in Providence last month, and has been increasingly so as the outlines of the field have sharpened. That fact is that, by and large, health, both public and individual, is the most important single factor in social work—most important in the causation of maladjustment, and thus in giving rise to the need for such work and in absorbing the energies, funds, and personnel of social agencies.

This is true not only of avowed health organizations whose full-time program is directed to these ends, but more subtly of those organizations which form the core of the professional social-work movement—the family case-work and charity organization societies. For the family that finds its way to the offices of these agencies usually stands in need of physical rehabilitation before it can attain to economic independence or mental and moral well-being. Ellwood, for instance, in his *Sociology and Modern Social Problems* (page 310), ranks first among the subjective causes of poverty, "physical and mental defects of all sorts, especially those arising from sickness and accidents." He continues: "Sickness causing temporary or permanent disability figures in from 15 to 30 per cent of all cases applying for relief in our large cities. Probably it is the most important single cause of poverty with which charity workers have to deal." He is not here including

intemperance, sexual vice, old age, death of the main support, and other factors which frequently have a public-health significance.

Devine, in his classic analysis of *Misery and Its Causes,* found a much higher percentage. "Ill health," he says, "is perhaps the most constant of the attendants of poverty. It has been customary to say that 25 per cent of the distress known to charitable agencies is caused by sickness." But in classifying the principal disabilities present in 5,000 dependent families who came under the care of the district committees of the Charity Organization Society of New York in two years, he found disabilities of a physical nature to exist in the following order of frequency (the diagnoses were chiefly non-medical), in addition to 18 others of a personal, social, or economic nature: chronic physical disability, temporary physical disability other than accident or childbirth, tuberculosis, childbirth, rheumatism, mental disease or deficiency, and accident. Grouping all the disabilities into eight fairly definite classifications, he found that in 1,000 typical families there was some kind of physical disability in 764 families, and several kinds in some. Roughly, then, we might say that the health factor enters into about three-fourths of all case work in some degree.

And while we have no comparable analysis of the other three of Miss Richmond's "four forms of social work"—group work, social reform, and social research,—it is obvious that workers in these special fields are devoting a considerable portion of their attention to health. The hospital social workers, whom Dr. Richard Cabot has described, form another group whose full time is directed to medical problems, while the public-health nurse, the school nurse, the psychiatric social worker, the child hygienist, and numerous other groups on the borderline between public health and social work, are indicative of the fact that prevention has become the watchword of both professions.

The National Conference of Social Work has for some years maintained a Health Section, whose sessions this year dealt with various practical topics of industrial hygiene, health demonstrations, coördination among voluntary health organizations, nutrition, and veneral-disease control. These sessions were marked by good attendance, vigorous discussions, and attractive exhibits. But the health interest has overflowed the banks of this one channel. A flourishing Mental Hygiene Section has been formed. One of the outstanding features of the Conference was Dr. Vincent's address on international health work, an abstract of which appears elsewhere in this issue. In the informal publicity group which carried on a three-ring circus of its own throughout the Conference, health education represented perhaps the biggest single interest, although the "community chest" movement ran it a close second. Health films made up a majority of the moving pictures that were shown in these meetings.

But there was scarcely a section whose interrelations with public-health problems did not crop out at some point. The visiting sanitarians came away with a new realization that public health *is* social work of a very high order, and that social work that forgets or ignores the health factor is not worthy of the name.

AN ERROR OF OMISSION

In the chapter on "Milk Inspection" from the forthcoming final Report of the Committee on Municipal Health Department Practice, printed in the July issue of the JOURNAL, some interesting comparative data are brought to light regarding the temperature requirements of the cities studied, for milk at different stages of its progress from cow to consumer. Four points in the process are distinguished: at the farms, in transit, at the milk depots, and upon delivery. Naturally it is at the milk depots that the strictest control can be and is observed. In 65 per cent of the 83 cities surveyed, a maximum temperature of but 50° F. is allowed at the milk depots. On delivery, 60 per cent of the cities require 50°. Transit standards are lower, 52 per cent requiring 50°, while on the farms only 51 per cent require this maximum. The standards vary all the way from 45° to 70°, while several cities make no requirements at all. On the farms, for instance, 31 cities require 50° or less; 22 cities, 60° or less; 10 cities, 70° or less; 13 did not state their regulations, while 7 have no requirements.

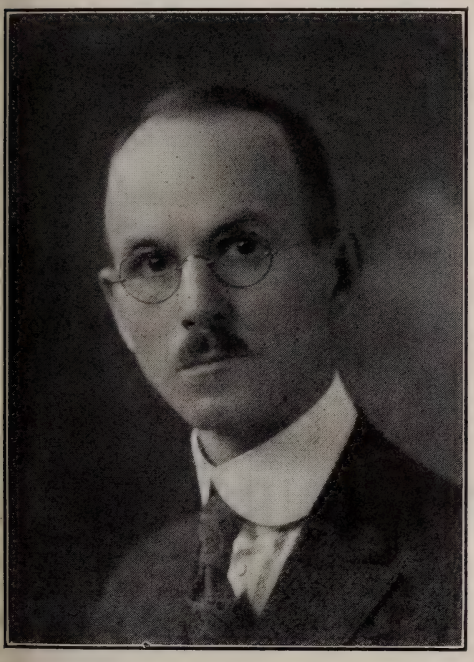
While it is possible and necessary to enforce proper standards at all these points, Dairy and Food Inspector Howard R. Estes, of the Board of Health of Flint, Michigan, in a circular letter to milk producers under his jurisdiction, has recently called attention to a very important point of danger in the process which is likely to be overlooked in the shuffle. We cannot do better than to quote his own words:

> Often it will be found that a milk producer will take the very best possible care of his product up to a certain point—and then he quits. He will cool each pailful of milk immediately after milking, he will store it at a temperature below 60°, and then—he will put it out by the road in the hot sun with no protection from the heat, to wait until the milk hauler appears.
>
> Now stop a minute and see the folly of such a procedure. Why take all of the former precautions unless you finish the job as it should be done? It is a waste of effort to do only half of it. You should consider your responsibility ended only after the milk hauler has taken charge of the milk.
>
> Whenever possible, it is urged that you have the hauler drive into your yard and get the milk directly from the cooling tank. It may be impossible, however, for a driver of a large truck to do this because of the inconveniences of handling a large truck in a small space. Then do the next best thing. Keep the milk in the cooling tank as long as possible. When it is taken out to the road see that it is properly protected by placing in the shade wherever possible, and by wrapping a wet blanket or sack around each can.
>
> Many producers have built small shelters where natural shade was lacking. These give fairly good results. Advice cannot be given to fit every local situation; therefore it is recommended that you keep the milk cold in any manner you may devise as long as it is done by sanitary methods.

Dairy inspectors may not generally have the power to enforce this protection of the milk between producer and carrier without special ordinances, but a great deal can be done by methods of education and persuasion. The conscientious dairyman should be glad to maintain his record at 100 per cent perfection by providing the best possible conditions for his milk as long as it is within his control. It is details like this, apparently trivial, and seldom thought of, which make the difference between a safe and an uncertain food supply.

DR. EDISON B. STARR
1880-1922

The death of Dr. Edison B. Starr, editorial assistant on the JOURNAL, was a great misfortune to industrial hygiene and public health in particular. He was just entering the prime of life when his sudden demise came as a shock to a circle of close friends and many acquaintances. Born July 4, 1880, in Grand Ledge, Michigan, the eldest of five children, he was the son of an inventor of notable accomplishments, who still survives him. His parents moved to Springfield, Ohio, where he



graduated from high school and later from business college. Brought into close contact with a physician in his young manhood, he took up medicine, graduating from Jefferson Medical College, Philadelphia, in 1905, following this with 18 months' internesh.p at St. Joseph's Hospital, Philadelphia.

He went into general practice in Columbus and later in Springfield, Ohio, where he met and married Miss Helen Ridgely. In 1914 he entered the Springfield Health Department under the city manager plan of government, became assistant director, and soon director of health—positions which he filled with unusual efficiency until a call came from the United States Public Health Service during the war. Then he was placed in industrial hygiene work in Washington and New York.

In 1919 he was appointed director of the Division of Industrial Hygiene of the Ohio State Department of Health, which position he held at his death.

Dr. Starr undoubtedly inherited a deeply investigative trend from his father. While slow in procedure, he was exhaustive, kept his objective always squarely before him, never wavered in pursuit, was possessed of great concentration and of a fine sense of the relative importance of factors in a problem. He was unusually adept in inquiry work. He was the typical man to undertake a Gordian knot problem, where not only a solution but some just, definite, and final action was to be accomplished. Because of this and his general experience in practical health work he was entrusted with the enactments of many important missions in state health work beyond the duties of his own division. He was a thorough student and, as a result of concentrated efforts on individual problems, possessed a rich and exhaustive knowledge regarding them. Some of these he published in this JOURNAL and elsewhere. Had his health permitted he would have published more. One item in particular, it is to be regretted, he did not complete before his death. This was the detailed circumstances in regard to cases of human rabies, which he had investigated and studied with his characteristic thoroughness—a type of disease in which many more scientific case reports are very desirable. He was especially cautious to avoid doing an injustice by act or statement, hence his commitments, both oral and written, came after careful weighing and rang with the finality of fact. He took up abstracting in industrial hygiene for the JOURNAL in 1919. An abstract of Sir Kenneth Gradly's paper on "Lead Poisoning in Industry," from a recent issue of the *Journal of State Medicine*, was his last contribution and will appear in the Septem JOURNAL.

In the autumn of 1920 he experienced what was considered to be a mild attack of influenza, but from which he apparently never completely recovered. In the several months before his death he became more concerned about his health, but repeated examinations were without results. On June 12 he quit his desk. A virulent form of central pneumonia developed quickly; and he died on June 19. He leaves a widow and two children. He leaves also the memory of a model of fine personality marked by sincerity of purpose, as a lasting inspiration for those who were fortunate enough to be close to him in his work.

EMERY R. HAYHURST, M. D.

ASSOCIATION NEWS

LIST OF NEW MEMBERS

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Ramon Pardo, Apartado Postal 144, Oaxaca, Mexico.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 8th of each month for publication on the 20th. Mail to New York office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in New York City. In replying give age, professional training, salary requirements, previous positions held and three or more references.

United States Civil Service Examination. The United States Civil Service Commission announces an open competitive examination for junior microanalyst August 9, 1922. Vacancies in the Bureau of Chemistry, Department of Agriculture, for duty in Washington, D. C., and in the field at $1,400 to $1,800 a year, and in positions requiring similar qualifications at these and higher or lower salaries will be filled from this examination unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer or promotion. Applicants should apply for Form 1312 stating the title of the examination desired, to the Civil Service Commission, Washington, D. C., or to the Secretary of the United States Civil Service Board in any state.

Openings for Junior Medical Officers in Government Service.—The United States Civil Service Commission states that there is urgent need for eligibles to fill positions of junior medical officer in the Indian Service and the Coast and Geodetic Survey and that the Commission will receive and rate applications until further notice.

Competitors will not be required to report at any place for a written examination, but will be rated upon the subjects of education, training, and experience as shown by their applications and corroborative evidence.

Full information concerning salaries, etc., and application blanks may be secured from the United States Civil Service Commission, Washington, D. C., or the board of civil service examiners at the post office or customhouse in any city.

Wanted: Health officer with experience in rural sanitation to fill position as state supervisor of county health work. This position will require almost continuous travel in the field. The salary is $3,300 and traveling expenses are allowed. Submit details of education and experience, together with references, to State Bureau of Public Health, Santa Fe, New Mexico.

Wanted: Competent clinical laboratory technician next September. Scope of work: serology especially, then hematology and bacteriology. Instruction in other routine may be had, if needed. Work supervised. Applicant should have had a good training in theoretical science. Salary $1,500 per year. Board and room very reasonable. Address 334 Bank of Galesburg Building, Galesburg, Ill.

Wanted: Nurse with public health training for district work. For details write R. W. Garnett, Health Officer, Danville, Va.

Wanted: Tuberculosis association in northern state desires field secretary. Must be a physician, trained and experienced in public-health work and a good speaker. State qualifications and minimum salary required. Address W. F. W. 492, care of this JOURNAL, New York address.

POSITIONS WANTED

Positions wanted announcements will be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 8th of the month.

Wanted: Technician in bacteriology, serology and general medical laboratory practice open for an engagement. Graduate of Johns Hopkins School of Hygiene, Three years' practical experience. Address E. M. B. 217, care this JOURNAL.

Wanted: Post as director of sanitation or chief of extensive sanitary inspection service of large railroad, industrial or mercantile corporation, state or municipal health department by sanitary engineer, thirty-one years of age, having eight years' experience in municipal, state and federal public-health work. Now on duty in southern states. Can furnish adequate reference as to ability, integrity, diplomacy and impartiality. Address 219 A. J., care of this JOURNAL, New York address.

Wanted: Public-health work by recent graduate of public-health school. S. B. in biology and public health, Mass. Institute of Technology, C. P. H. in Harvard Technology School. Fourteen months' experience in public-health administrative work. Address A. B. 218, care of this JOURNAL, New York.

Wanted: Position as bacteriologist of municipal or state laboratory or instructional position in bacteriological department of college or university. Six years' experience in teaching and laboratory work. Have M. S. degree from recognized university. Address 220 M. A. J., care of this JOURNAL, New York address.

FOR SALE

For Sale: Property and position in city of 40,000 cosmopolitan population. Rich Ohio community, with excellent schools, roads, churches, etc., in an up-to-date county. Do not write for particulars unless interested in and qualified to do modern public-health work in rural district. Address T. K. R. 490, care of this JOURNAL, New York.

LETTER TO THE EDITOR

TO THE EDITOR:

I have just completed the reading of the June issue of the JOURNAL. If your duties as editor of the JOURNAL entail as many criticisms and unpleasant incidents as fall to the lot of the common run of editors (my impressions have been formed by the remarks of rural paper editors), an occasional appreciation is not unwelcome.

I have found this issue of the JOURNAL the most interesting I have read in months. This is probably because of the nature of the papers, many of which were read before the Section on Food and Drugs.

I merely wanted you to know that I enjoyed this issue, and look forward to more like it.

Best wishes.

C. A. ABELE,
Alabama State Board of Health.

BOOKS AND REPORTS REVIEWED

Pneumonia. (Harvard Health Talks.) *Frederick T. Lord, M.D., Harvard University Press, 1922. Pp. 69. Price $1.00.*

The subject of pneumonia is treated by Dr. Lord in all its aspects in a scientific but non-technical manner. The completeness is shown by the topics discussed such as the menace of pneumonia to people living under different conditions; the types of pneumococci and the importance of understanding the nature of types; the use of the serum for the No. 1 type and the reasons, up to the present time, for its failure to benefit pneumonia due to other types; the predisposing and bacterial causes of pneumonia; the factors underlying the crisis and recovery from pneumonia; the degrees of diagnosis. A thorough consideration is given of the difficulties which have prevented to the present time, the lessening of the amount of pneumonia in the world.

This book deserves to be very widely read. While primarily written for those who are not students of medicine it gives the essential facts in such a clear and unbiased way that physicians themselves can read it and gain by doing so. Dr. Lord in treating the danger of serum shock, advocates not only in cases of pneumonia, that an intracutaneous injection should be given to test the susceptibility of the patient before giving the specific serum intravenously, but urges that this intracutaneous test and the following desensitization should be carried out in persons receiving other serums such as the diphtheria and tetanus antitoxin, even when these serums are given as a preventive.

The reviewer's own practice is not to worry about intracutaneous tests before giving intramuscular injections of tetanus and diphtheria antitoxins, as it is his belief that the danger is so slight that the time lost is not compensated for by the knowledge gained.

WILLIAM H. PARK, M.D.

The British Official Medical History of the Great War. *Edited by Sir W. H. Macpherson, K. C. M. G., C. B., LL.D. London: His Majesty's Stationery Office, 1922. Distributed by British Commonwealth Publishers, Ltd., Montreal, Canada. Vol. I, 463 p. Complete in two vols. Price $10.00.*

It is perhaps rather a bold thing to attempt a review of an official government publication of 500 pages, since the reader imagines at once page after page of statistics and tables, and the formal dry-as-dust statements of what today have begun to be perhaps little more than memories for many. But these fears may be abandoned, when a glance at the titles of the chapters is taken, and the plain simple story is read of how what had been at the time of the South African War a medical service little better than that of the Crimean War fifty years before, became, through the efforts especially of Sir Arthur Keogh, an organization too small, it is true, for all the medical needs, but so complete that when war broke out on August 4, 1914, the various units of the Royal Army Medical Corps went without a moment's delay to the precise posts they were to occupy, in an expeditionary force of 140,000 men who were engaged in battle in Flanders within twenty days thereafter.

The editor points out that rarely in any of the old wars did any medical history appear giving a consecutive account of the events, written within any reasonably short period, with the result that the opportunity was lost for studying the organization and development of work as it bore upon the different phases of a campaign. The present history is an admirable exception to this.

It is especially pleasing to the reviewer and will be to the members of the A. P. H. A. that the general desire for a medical history of the war in an acceptable form was brought to the attention of the British director general of army medical services through Professor Adami of McGill University, who may be fairly claimed as a

Canadian, since he was attached to the Canadian Army Medical Corps, and who wrote to Sir William Osler on the matter as early as September, 1914.

The volume gives us a brief summary of how the old and poorly organized medical service of the South African War was gradually replaced by a perfectly organized Royal Army Medical Corps equipped in every detail except in numbers, and notes the interesting fact that on July 3, 1914, for the first time the War Office, the British Red Cross, the Territorial Forces, and the St. John and St. Andrews Ambulance Associations appointed a joint committee for common action in the emergency of war. The total requirements of the first expeditionary force of 140,000 men were 800 medical officers, 9,000 other workers, and 528 nurses.

Chapter V deals with the hospital accommodation and gives us some idea of what the Great War meant, since while the military hospital capacity of the United Kingdom before the war was 7,000, it had increased at the time of the Armistice to 364,138 beds.

Chapter VII deals with the more interesting details of the man power of the people as illustrated by the results of the medical examinations of recruits, and categories of fitness are given which will serve for useful comparisons with those in America and Canada.

How the medical officers were trained in their duties is set forth fully with minute details of how medical and surgical supplies grew and how, step by step, experience brought about standardization of all sorts of equipment. The interesting item is given that 1,086,000 clinical thermometers were standardized and supplied.

Chapter X gives a most interesting account of the sanitary organization of camps in the United Kingdom and illustrates how the body of 3,000 county and borough medical officers of health trained in their routine health work became the basis upon which the sanitation of all military training camps grew up. Indeed it is not too much to say that the medical officers of health proved the solution of medical military problems both in Great Britain and America.

Every health officer interested in the advance of military hygiene and camp sanitation, who wishes to gain further efficiency through the account of how a simple medical corps grew into a great world life-saving army, will do well to obtain a copy of the British Official Medical History of the Great War, published under the authority of the British War Office. Intensely interesting is the account of the military operations in China, India, South and West Africa, with admirable photographs of hospitals, field ambulances and camps.

PETER H. BRYCE, M. D.

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Asthma and Hay Fever. *William Scheppegrell, A.M., M.D., president, American Hay Fever Prevention Association; chief, Hay Fever Clinic, Charity Hospital, New Orleans. Philadelphia: Lea and Febiger, 1921. Price $2.75.*

It seems fitting that Dr. Scheppegrell after many years' work on hay-fever and asthma should publish a monograph on these subjects, thus crystallizing knowledge which is still vaguely and erroneously held by both physicians and laymen. The author lays great stress upon the fact that only wind-borne pollen is important in producing symptoms. The reaction to the pollen is quantitative—the symptoms varying directly with the amount of pollen in the air. The popular conception that the golden-rod, daisy, and rose may cause symptoms of hay-fever receives a fatal blow, because the pollen of these flowers is too heavy and too large for wind distribution.

The study of the botanical characteristics of the plants, and the characteristics of the pollen grains, with excellent plates of both are given considerable space. The classification of the plants into four main groups, namely, the ragweed, the grasses, the wormwood, and the chenopod helps to simplify a very complex subject. There is an excellent table of hay-fever resorts in the various states. Prevention of hay-fever by means of legislation and illustrations of laws passed should stimulate others to demand similar or better laws for the public health. Atmospheric conditions in relation to symptoms is well covered. The method of testing the rooms of hay-fever patients by means of glycerine plates will help to solve some difficult problems.

Any one who has studied asthma in localities other than those in which the author has worked will be disappointed to find only half a page devoted to other than pollen proteins. Animal emanations, dust and food are hardly more than mentioned. Orris found in connection with face powders and often producing symptoms, is not even mentioned. This book will be found to be a very valuable adjunct to any one interested in the subject. However, one who expects a complete treatise on the "care, prevention, and treatment of hay-fever and asthma" will not be fully satisfied.

N. P. LARSEN, M. D.

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Ringworm and Its Successful Treatment. *John P. Turner, M. D. F. A. Davis Co., Philadelphia, 1921. Pp. 62. Price $1.00.*

The book is of great value on account of the definite line of treatment described.

The author fails to mention the X-Ray as a valuable method of treatment in the hands of an expert. Where X-Ray is not available, the school nurse should be supplied with a copy of the book, and the children made to follow the directions. Surprising results will be obtained.

R. N. TRIPP, M. D.

✣

The Venereal Clinic. *Ernest R. T. Clarkson, Wm. Wood & Co., New York, 1922. Pp. 475. Price $6.50.*

The introduction, which is written by Sir Squire Sprigge, M. D., editor of *The Lancet*, describes this book as an "up-to-date manual for the practitioner and student attending venereal disease clinics." It can hardly be called a manual, but rather is one inclined to look upon it as a compendium of the venereal diseases written by physicians who are engaged in dispensary activities. The arrangement of the material is happily conceived and is a departure from the usual text-book type. The illustrations add to the value of the book. The volume is divided into two parts, a medical part which is given over to diagnosis, pathology, and treatment of syphilis and gonorrhea in both sexes; and the second part, which deals with the sociological and administrative procedure in the care, treatment, and control of the venereally infected. The medical portion of the book is concise, well-written, and is the result of tried methods of the authors. The sections devoted to gonorrhea in the female, including vaginitis, show the importance of painstaking care in the management of these patients. The outstanding portions of the volume are the chapters devoted to sociological discussion, and every physician attending a clinic in which venereal diseases are treated should read this part of the work. There can be no doubt that the authors of this modest volume have fully recognized the opportunities for rendering their community a real service in the fundamentals of socio-sex hygiene and venereal-disease control. Venereal clinic executives, public-health administrators, nurses, social workers, and others interested in this phase of public-health activities, will find much material of value in this book.

WALTER B. BRUNET, M. D.

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Women in Chemistry. *Studies in Occupations, Number four. The Bureau of Vocational Information, New York: 1922. Pp. 272.*

This volume is a well-organized compilation of information necessary to women who desire to choose chemistry as their life-work. It is a valuable guide for all college and high-school students interested in choosing chemistry as a career. It contains a section devoted to opinions on the general attitude for and against women as manifested by their employers and associates (both men and women); qualifications and limitations of a chemist, which seem in the main from the point of view of the reviewer to apply equally to both sexes; a word about salaries and advancement; and an appendix. The latter includes lists of colleges admitting women to courses in chemistry; a list of prizes and grants, which is sometimes misleading as it includes prizes available to men only (cf. Bowdoin prize of Harvard University); fellowships and scholarships open to women, and a comprehensive list of publications on subjects related to chemistry. On the whole, the study shows a very hopeful future for women in chemistry. Many of the personal letters quoted indicate that the prejudice against women is being overcome by the demonstration of their ability in competition with men, and that the traditional "lack of initiative, mechanical ability, and originality" is yet to be proved when appropriate early training is provided.

MATHILDA M. BROOKS, PH. D.

PUBLIC HEALTH NOTES

Abstracts by D. Greene, M. D., James A. Tobey and Homer N. Calver.

Salary of M. O. H. for Manchester.—After conferences between the Manchester Town Hall subcommittee and representatives of the British Medical Association, a report on the subject of the remuneration to be paid to the medical officer of health for the city was presented to the committee on April 26. The report is something in the nature of a compromise; it was decided to advertise the vacant post offering a salary for the first two years of £1,500 a year, of £1,750 for the succeeding two years, and of £2,000 after that period, if the services of the officer appointed are deemed satisfactory.—*The Lancet,* London, May 6, 1922, p. 921.

✣

The Status and Salary of the Medical Officer of Health.—The enactment in 1921 of the Public Health (Officers) Act, which came into force on April 1 of the present year, coupled with the Sanitary Officers Order, 1922, recently issued by the Ministry of Health, to take effect from the same date, give for the first time to whole-time medical officers of health that security of tenure of their appointments, the absence of which in the past has subjected the progressive officer at times to the drawbacks of an ambiguous position. The medical officer has in many areas been liable to summary dismissal by an authority outraged at some indictment on his part of local affairs; though such treatment has occurred but rarely its possibility has certainly tinctured official life. Now such dismissal can take place only with the consent of the Ministry of Health. And in respect of part-time medical officers of health there is also a distinct improvement in the terms of appointment, under the new enactments, although the security of tenure is here, as would be expected, not so complete.

But it is only the publicity given to several recent appointments which has made it evident to the general public that the medical officer of health, even though his service status may be acknowledged in principle by the local authority employing him, does not in the majority of cases receive emoluments corresponding with his true position. The glaring instance of a northern town of over 400,000 inhabitants has been quoted in the press, in which the medical officer of health, responsible for the maintenance of health, receives less than £1,000 a year, while the gas manager receives over £2,500, and the sewage manager and the chief constable over £1,100 each. This is by no means a solitary instance of underpayment, though doubtless a somewhat extreme one. In the eyes of the average man of the world the status of an appointment can be measured roughly by the salary attached to it. There can be no doubt that the public health service is seriously handicapped by the inferior status implied in the low salary so commonly paid to its members. It is unfortunate, but by no means surprising, that under the circumstances there should have been of late a movement to discourage in the medical schools the entry of students into the field of public health, on the ground of its unattractive financial outlook. It would be a serious blow to the physical welfare of the country if that movement were to develop any degree of momentum. We would appeal to local authorities to take a long view of their responsibilities in the matter.—*The Lancet,* London, April 22, 1922, p. 813.

✣

Training for the D. P. H.—The Public Health Committee of the General Medical Council of England has recommended the following changes in courses of instruction to be provided graduates of medical colleges in England for the D. P. H.:

Proposed Regulations	*Present Regulations*
Minimum time after qualification before admission to final examination for diploma—Two years.	Nine months.
Minimum length of curriculum—One year.	Nine months.
Bacteriology and Parasitology, 180 hours; Chemistry and Physics, 90 hours—Five months.	240 hours.
Lecture Courses—100 hrs. Public Health and Sanitation .....30 Epidemiology .....20 Sanitary Law and Administration .....20 Sanitary Construction...12 Vital Statistics.....10 Meteorology and Climatology 8	Four months. Not compulsory, but a course of instruction in sanitary law and administration reduces outdoor work by one-half.

Infectious Disease Hospital—Three months.	Three months.
Outdoor Sanitary Work—Six months.	
With 30 attendances	Six months, consisting of 60 attendances reduced to three months, 30 attendances, if lectures are taken.
With 60 attendances	

Abstract of article in PUBLIC HEALTH, April, 1922, in *Public Health Engineering Abstracts*, June 10, 1922.

✣

Some Factors in Municipal Health Administration.—Until recently a health officer was considered to be a sort of necessary evil, one who went about posting placards on quarantined premises, making more or less successful attempts to stop the spread of disease. He usually received the minimum salary permitted by law, grudgingly provided by the municipal budget. At present prospects give promise of a brighter future, because of the education of the public to the importance of the duties of his office. By making the health officer the head of a department, responsible only to the public and the mayor or other municipal body, he is immediately thrown into the limelight. A term of service of four years is provided under a proposed law for second and third-class cities in New York, "unless the health officer is removed by the appointing power." This is a step in advance, but the time should be for life, being removable only after a hearing on sustained charges of neglect of duty or other causes, or retired on account of physical or mental inability; in the latter event a pension provision should be made.

Many of the health officers have taken advantage of the courses given at various universities on public health, at great expense in money and time, in order to better fit themselves for service. This is especially hard on the rural health officer who in many cases receives as low as $100 per month. It is hoped that under the new law the removal of ashes and garbage will be eliminated from the duties of the health officer, as only in exceptional cases does this concern the health department, and yet the amount expended for this is accounted as having been spent for health work.

Under paragraph 7 the law provides for the employment of experts, which makes it possible for a health officer to engage the service of specialists in an advisory capacity or for holding clinics on tuberculosis, venereal or other diseases, child welfare and for special sanitary surveys.

The state commissioner of health is thoroughly in sympathy with the general provisions of this bill, and it is to be hoped that those cities which have not already established independent departments of health will in the near future take steps to do so. The health administration in a number of the smaller cities is far from efficient, but the defects are thoroughly remediable. The principles embodied in this law will go far toward bringing this about.—Matthias Nicoll, Jr., M. D., New York State Department of Health, *Health News*, April, 1922.

✣

Physicians for Rural Districts.—Whereas the population of the state is increasing, the number of physicians graduated is decreasing. This year there will be about 300 graduates in the state, as against 750 a year 20 years ago. Some municipalities have no practicing physician who has been in practice less than 25 years, and out of 400 municipalities there are about 250 with no physician at all. The Public Health Council has prescribed that no one shall be appointed health officer who is over 65 years of age, but a number of municipalities have no physician under that age. In some localities, particularly in the Adirondacks, there is no physician within an area of 25 miles.

The requirements to become a physician are so great, taking 8 to 10 years of study after graduation from high school, that the medical colleges have limited their number of students, and the graduates find greater returns and facilities in the large cities, leaving the rural districts with fewer physicians than in former years, and with practically the same kind of medical care that was available 25 years ago.

Repeated efforts have been made to put through a bill that would provide state aid toward the establishment of rural community hospitals, public-health laboratories, clinics and public-health nursing service, for the question of medical service for the rural communities has become more and more serious. It has an important bearing on the death-rates and the reduction of infant mortality.—Herman M. Biggs, *Health News*, March 1922.

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National Health Council Issues Report on U. S. Bureau of Animal Industry.—As its name indicates, the U. S. Bureau of Animal Industry is concerned chiefly with the welfare of animals. Much of the work of this Bureau, however, relates to human health. In order to present a brief outline of the activities of the

Bureau, the National Health Council has issued a mimeographed report on the Bureau of Animal Industry. This report sets forth the legal authority, history, and development of the Bureau, its organization, personnel, and appropriations, and coöperation with other agencies. It is the eighth in a series concerning the health activities of the United States Government which has been issued by the Council. It is planned in the near future to combine all of these reports in a single printed pamphlet, thus offering for the first time correlated and accurate information concerning the public-health work of the United States Government. Copies of the report on the Bureau of Animal Industry or any of the other reports, may be obtained without charge from the Washington Office of the Council, 17th and D Streets, N. W., Washington, D. C.

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Index of Public Health Engineering Abstracts.—The Division of Domestic Quarantine, Section on Sanitary Engineering of the U. S. Public Health Service, has issued an attractive index to the *Public Health Engineering Abstracts* covering the year 1921. This Index is divided into three parts: 1. Author Index; 2. Subject Index, and 3. Magazine Index. This pamphlet is a valuable compilation of domestic and foreign literature on sanitary engineering and public health. The list of journals is very complete and forms a valuable reference list.—(*J. A. T.*)

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State Legislation for Physical Education.—The United States Bureau of Education has issued a new pamphlet on recent state legislation for physical education (Bulletin, 1922, No. 1). This compilation, which is issued over the names of Thomas A. Storey, Willard S. Small and Elon G. Salisbury, is a reissue of Bulletin No. 40, 1918, on the same subject. The pamphlet is divided into four parts, 1. Purpose and Scope of State Laws for Physical Education; 2. Tabular Summary of State Laws; 3. Principles Governing State Legislation for Physical Education; and 4. Text of State Physical Education Laws. Under Part One, Scope is further divided into (a) Prescription of age or grade limits; (b) Credit and graduation; (c) Time requirements; (d) Authority for prescribing courses; (e) Authority for enforcing courses; (f) Supervision; (g) Duties of state supervisors of physical education; (h) Local supervision and special teachers; (i) Qualifications and preparation of teachers; (j) Relation to medical inspection; (k) Financial support; (l) Relation to military training. Each of these subjects is discussed with reference to all of the states having laws. Since June, 1915, 25 states have enacted legislation relative to physical education.—(*J. A. T.*)

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Preservation of Health.—Surgeon General Merritte W. Ireland is perfecting physical tests and an annual physical examination for the commissioned personnel of the Army, with a view of obtaining statistics in regard to the cause of defect and disease and the building up of a system of physical conservation that cannot but result in increased efficiency, prolongation of life and the general preservation of health. It is his idea that from this selected field of observation many important conclusions can be reached that will enable the Medical Department of the Army to communicate to the nation at large valuable principles concerned in disease prevention and health preservation, which will eventually make a most valuable contribution to the cause of national good health.—*Red Cross Courier,* May 27, 1922.

✣

Smithsonian Institution to House Public Health Exhibit.—The National Committee on Exhibits Showing Advances in Sanitary Science has recently been formed in Washington, D. C., for the purpose of collecting and preparing material for a great popular public-health exhibit in the capital. Space for the proposed exhibit has been placed at the disposal of the committee by the Smithsonian Institution, which is visited by more than half a million persons annually.

✣

Prudential Collection for Surgeon General's Library.—The Prudential Insurance Company has donated to the Surgeon General's Library of the United States Army at Washington its collection of books, documents and data, estimated to represent 90 per cent of the entire public-health material of the civilized world, and containing between 50,000 and 100,000 volumes and publications. These were brought together during the last 30 years by Dr. Frederick L. Hoffman, the Prudential statistician. The gift has been approved by the surgeon general of the army and the secretary of war, and a place is being prepared for its reception.—*Science,* June 16, 1922, p. 641.

Prevention of Blindness.—The Seventh Annual Report of the National Committee for the Prevention of Blindness, recently issued, is a compend of current information and methods in regard to the blind. Some of its important data follow:

In 28 schools for the blind and 11 classes for the blind in public schools, statistics show that 21.9 percent and 22 percent respectively of the pupils are blind due to ophthalmia neonatorum, but for new admissions during 1920 and 1921 the percentages have dropped to 13.7 and 13.5 respectively. At best, however, these statistics can be regarded only as a general indication of results obtained from continued effort. They cannot be considered medically accurate (except in case of schools having the services of oculists), since the report of parent or guardian is in many instances the only source of data. However, they are the best obtainable.

The report of the Illinois Survey on trachoma is a noteworthy contribution to all states facing this problem; it explains the inauguration of the work against this most painful eye disease, and the methods of carrying it on. Tennessee, Kentucky, and Missouri have been holding clinics of the United States Public Health Service in coöperation with local agencies. Minnesota is making every effort to open the White Earth Hospital to give the Chippewa Indians a chance for treatment, 20 per cent of whom are suffering from trachoma. A committee has been appointed by the Ophthalmological Society to obtain funds for scientific research into the causes of this disease.

The United States Census of the blind for 1920 shows 52,617 blind persons as against 57,272 in 1910. The National Committee for the Prevention of Blindness is keenly appreciative of the comment of the report, which suggests that a decrease in preventable blindness is indicated as a result of improved medical knowledge and the education of the public. It cannot, however, accept these figures, as it contends that the figures of 1910 were too conservative. Judging from verification of reports in New York State, the Committee believes that there are probably 105,000 blind persons in the United States, and that in all probability the 1910 census was as conservative as the 1920 census, thus indicating a still greater decrease in the percentage of preventable blindness.

New Vice-President of Society for Visual Education.—Edward Stuart, formerly in charge of health education and publicity for the Rockefeller Tuberculosis Commission in France and the League of Red Cross Societies in Geneva, Switzerland, and recently in charge of the Motion Picture Bureau of the American Red Cross, has resigned from the latter to become vice-president of the Society for Visual Education, an organization which produces and distributes educational motion pictures for use in the non-theatrical field. This organization has recently been appointed agent of the American Red Cross in the distribution of a large library of Red Cross films taken during and since the war.

✠

Harvard School of Public Health.—This school is the outgrowth and continuation of the school jointly conducted under Harvard University and Massachusetts Institute of Technology which was established in 1913. Prior to this, Harvard Medical School offered courses leading to the degree of Doctor of Public Health, conferred for the first time in 1911.

The new school is now organized and in September, 1922, will open prepared to offer systematic courses of instruction and appropriate degrees. The medical degree of M. D. is a prerequisite for the degree of Doctor of Public Health, but not for the Bachelor of Public Health, the Master of Public Health, or the Doctor of Philosophy in Hygiene. Special opportunities are offered to research students who may desire to investigate special health problems or to make surveys without reference to a degree. A limited number of fellowships of $1,200 each will be offered. Applications for fellowships should be filed with the secretary of the School of Public Health at least four months prior to the opening of the school.

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National Cancer Week.—The second National Cancer Week will be conducted November 12-19, 1922, by the local committees of the American Society for the Control of Cancer, in coöperation with all those official and volunteer agencies which gave such notable assistance last year. The Society now has 665 cancer committees, and it is hoped to double this number before November. Literature is now being prepared, and every effort is being made to secure

the coöperation of all state and local health departments, clubs, lodges, and chambers of commerce, as well as merchants' associations and organized groups of employers, labor unions and employees, toward this great life-saving movement.

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Training of Hospital Executives.—The Committee on the Training of Hospital Executives, appointed at a conference called by the Rockefeller Foundation in 1920, in its recent report recommends that a course or courses of training for hospital executives be inaugurated under University auspices. A record is given of the number and capacity of hospitals in the United States and their facilities for training hospital personnel, laboratory workers, social workers, physicians and nurses.

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Correspondence Course in Public Health Nursing.—The New York University and Bellevue Medical College announces that in coöperation with the New York State Department of Health it will give a correspondence course in public-health nursing in the state of New York, open to all registered nurses, to begin September 5, 1922. The course will call for ten hours' weekly study for a period of forty-eight weeks, and will cover instruction in all the various phases of public-health work in which nurses are engaged, such as maternity and child hygiene, communicable diseases and bacteriology, vital statistics, community and home hygiene and sanitation, industrial hygiene, occupational diseases, mental hygiene, and the principles of community organization and administration. In the latter part of the course one week of study in residence in either New York City, Buffalo, Syracuse or Albany will be required. A matriculation fee of $5.00 represents the entire expense outside of living expenses during the week of residence work and the purchase of the necessary text books. A certificate will be given on completion of the course. Application may be made at once. Address all communications to Edward H. Marsh, Room 804, 25 West 45th Street, New York City. It is hoped by this means to increase the number of women qualified for paid positions in the health service of the state.

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Treatment of Meningococcus Meningitis.—In a very comprehensive review of the literature the author discusses the advances that have been made in the treatment of meningococcus meningitis, and in hygienic measures which must be taken. Free ventilation, isolation, and a proper amount of space are as necessary for the treatment of patients as for the prevention of the disease. Attention should be given to the prevention of overfatigue and the control of rhinopharyngeal infections. The prevention of infection of attendants in charge of patients is chiefly concerned with the discharges from the rhinopharynx. Concerning the treatment of carriers, fresh air and sunshine have an important and favorable influence on the rapidity with which the meningococci disappear from the nasopharynx. Chronic inflammatory conditions of the rhinopharynx require appropriate treatment. Aside from these measures the efforts to hasten the disappearance of the meningococci in convalescent patients and carriers by antiseptics have been most discouraging. Active immunization by means of meningococcus vaccines is still in the experimental stage. In the presence of clinical meningitis the method of serum therapy is described. It has recently been shown that when intravenous injections of serum are combined with the intraspinous treatment the meningococci disappear from the cerebrospinal fluid more rapidly than when intraspinous therapy alone is used. In the average uncomplicated case of this disease serum treatment is discontinued when the cerebrospinal fluid becomes clear and the organisms can no longer be demonstrated in smears or in culture.—K. D. Blackfan, *Medicine*, May, 1922, 139.—(*D. G.*)

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On the Eradication of Diphtheria.—In an article entitled, "Is the Control of Diphtheria Leading to Eradication?" the author analyzes the factors underlying present day procedures for the control of diphtheria. By eradication he means such perfect control of the factors of a disease that epidemic spread becomes impossible. He concludes that the eradication of diphtheria will not come through the serum treatment of patients, by the immunization of the well, nor through the accurate clinical and laboratory diagnosis of the case and the carrier followed by quarantine; rather it will be attained through the mass sanitary protection of the populace, subconsciously practiced by the people at all times.—J. G. Cumming, *Jour. Amer. Med. Assoc.*, March 4, 1922, 630.—(*D. G.*)

Swimming Pool Conjunctivitis.—Attention has recently been directed to an acute follicular conjunctivitis observed in several persons frequenting a municipal swimming pool in Paris. Although this form of conjunctivitis is not so serious as granular conjunctivitis, it cannot be considered as benign, since it hampers visual functions considerably. Upon inquiry it was found that this pool was used by workmen living in that quarter of the city, from 350,000 to 400,000 people using it yearly. It is fed by the Seine river and the water is filtered in winter only by means of sand filters. The pool is scrubbed every Tuesday and the water renewed. All bathers are expected to use the shower before entering the pool, but in reality only a few of them do it, and the water, which is renewed only once weekly and heated to 80° F. becomes rapidly an excellent culture medium. It was noted that all the patients were males. This is attributed to the fact that the water is changed on Tuesday, and that Wednesday afternoon is reserved for women.—Foreign Letter, *Jour. Amer. Med. Assoc.*, June 3, 1922, 1733.—(*D. G.*)

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Experimental Rickets.—Studies made to determine the effects on growing rats of diets deficient in calcium, but which contain a sufficient supply of the fat soluble A vitamin and an approximately normal content of phosphate, show that these rats develop a pathological condition of the bone which has certain fundamental resemblances to human rickets. The rickets-like condition of the bones does not develop if the deficiency in calcium is compensated for by the addition to the diet of calcium carbonate or if the animal is allowed to receive cod liver oil. Since this pathological condition in the skeleton is in no way prevented by an amount of butter fat which is amply sufficient to protect the animals against keratomalacia, it is necessary to assume that butter fat exercises a very feeble influence in protecting animals against the development of rickets-like lesions.—E. V. McCollum, N. Simmonds, P. G. Shipley, and E. A. Park, *Amer. Jour. of Hygiene,* July, 1921, 492.—(*D. G.*)

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Disinfecting Skins and Hair for Anthrax.—In this article are given details of several tests carried out on the disinfecting of skins and horsehair for anthrax. The tests on skins showed that (1) the lime soak of 5 per cent (CaO) permitted by the Bureau of Animal Industry regulations proved to be unreliable even after a 72-hour exposure. (2) The Schattenfroh method of soaking skins in 2 per cent HCl and 10 per cent NaCl solution for 48 hours at room temperature gave uniformly good results if carried out under conditions similar to those employed in the tannery. Anthrax-infested horsehair can be satisfactorily disinfected by several methods; (1) by steam under pressure in the autoclave (15 lbs.) for 30 minutes; (2) by dry heat 200° F. for 24 hours; (3) by formaldehyde as used in England. Cyllin disinfectant in the strength and under the conditions certified in England will not kill anthrax spores.—H. F. Smyth, *Amer. Jour. of Hygiene,* Sept.-Nov., 1921, 541 (*D. G.*)

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How Long Does the Mosquito Retain Malaria Parasites?—A writer in the *Public Health Reports* describes experiments as to the longevity of the Anopheles mosquitoes and as to the period during which they may retain the malaria protozoa. He found that 85 specimens of *Anopheles punctipennis* lived an average of 90 days and one survived for 231 days. A single specimen of *Culex territans* survived 265 days on a diet of fruit juices.

Plasmodia of malaria proved to be viable by inoculation into the human host from the bite of a mosquito infected 55 days previously. Mosquitoes failed to convey malaria plasmodia through their biting, 61, 66, and 67 days, respectively, after becoming infected. These three mosquitoes were kept under conditions identical with those in which viable sporozoites were demonstrated in the five specimens mentioned above.—U. S. *Public Health Reports,* May 5, 1922. (*J. A. T.*)

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Requirements of State Child Labor Laws.—Comparing the standards prescribed by state child labor laws with the standards of the federal child labor tax law, which was declared unconstitutional on May 15, 1922, it is found that the laws of the following 13 states measure up in all particulars to the standards of the federal law: Alabama, Connecticut, Illinois, Indiana, Kansas, Kentucky, New York, Ohio, Oklahoma, Oregon, Tennessee, West Virginia, and Wisconsin. Certain other states come fully up to one or more of the standards but fail in regard to others. Of these, 14 come up to the standard in regard to age; 13 and the District of Columbia in regard to hours, 12 and the District of Columbia in re-

gard to night work; and 12 in regard to the minimum age for work in mines and quarries. The states which fall below the federal standards in all respects are Delaware, Mississippi, and Wyoming.—*Weekly News Summary*, U. S. Children's Bureau, June 10, 1922. (*J. A. T.*)

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Administration of Maternity and Infancy Act.—The appointment of Dr. Ethel M. Watters of San Francisco as consultant in the administration of the Sheppard-Towner Maternity Act has been announced by the U. S. Department of Labor through the Children's Bureau. Dr. Watters has been director of the Bureau of Child Hygiene in the California State Board of Health since 1919, and is a well-known pediatrician. She becomes a member of the staff of the Federal Children's Bureau, which is charged with the duty of administering, in coöperation with the states, the federal funds appropriated for promoting the welfare and hygiene of maternity and infancy. Dr. Watters studied medicine at Leland Stanford Jr. and Johns Hopkins Universities, receiving her degree from the latter.

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The Committee for the Study of Nursing Education.—A committee established in 1919 for the study of nursing education recently made public a general report on the problems of training nurses for the care of the sick and for the prevention of diseases. The original conference which resulted in the appointment of this committee was called by the Rockefeller Foundation, which has also given financial support to the investigations conducted under the auspices of the committee. Dr. C.-E. A. Winslow is chairman, and Miss Josephine Goldmark, secretary.

After making a thorough analysis of the situation the committee has agreed upon a comprehensive plan of nursing service embracing the three following grades:

1. The trained registered nurse for the care of the acutely ill, the present training course of three years to be enriched and improved and at the same time reduced 20 per cent in length, without lowering standards.

2. The public-health nurse, the supervising nurse, and the teacher in schools of nursing, who are to receive specialized postgraduate training in addition to the standard course for registered nurses.

3. The subsidiary nursing worker, to be trained by an 8 or 9 month course and licensed as nursing aide or nursing attendant for the care of minor and chronic illness and convalescence.

The report lays particular emphasis upon the necessity of financial support—which has never yet been provided—for all forms of nursing education.

The public-health nurse has proved to be the best missionary to carry the message of health into the individual home. In order to meet the generally accepted standards, 50,000 public-health nurses are needed as against the 11,000 now in the field. It is the judgment of the committee that the public-health nurse should be equipped with as rigorous a training as the bedside nurse, further supplemented by special studies along lines of public health and social service.

By a better organization of the course of study in the regular hospital training schools, and the elimination of excessive routine service, it is proposed to shorten the period of training from three years to two years and four months, and still maintain the same educational standards. The working day should also be reduced to eight hours.

The proper training of nurses will cost considerable, and if the community needs and desires the services of competent nurses, it must pay for their education, and not leave the whole burden of education on the hospitals, who should be relieved from the dilemma of exploiting student nurses on the one hand, or of diverting funds given for the care of the sick on the other, by the provision of endowments specially devoted to the purpose of education.

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Commonwealth Fund Child Health Program.—One of the most important programs ever undertaken for the betterment of the health of the children of this country has just been announced by Courtenay Dinwiddie on behalf of the Commonwealth Fund. This fund has decided to finance a thorough child-health program in three typical cities for a period of five years. The program will comprise safeguarding the health of the mother-to-be, laying a good health foundation for children in the early, sensitive, and formative period of their growth and health supervision and the formation of the essential health habits in school children. The responsibility for carrying out this work is placed upon the American Child Hygiene Association and the Child Health Organization of America. A joint

committee representing these organizations together with the National Child Health Council, the National Health Council and the Commonwealth Fund will have charge of all general policies and plans. This committee has elected as its officers Barry C. Smith, chairman; Philip Van Ingen, M. D., treasurer; and Courtenay Dinwiddie, executive secretary, and has established offices at 532 Seventeenth street, Washington, D. C. Work has already begun and after careful consideration the committee has decided that the first city to be assisted in developing the thorough program for child health will be selected from the upper Mississippi valley region. The general qualifications of this city are that it must be from 15,000 to 25,000 in population, with an infant mortality rate of approximately 100 per thousand live births, or greater. It must also show a desire to coöperate in the work during the five-year period and a reasonable prospect of assuming the responsibility for carrying it on in the future. Two other cities are to be selected in other sections of the country after work has been well started in the first. The work will be developed in each community so as to enlist the full coöperation of the Health Department, the physicians, the public-health nurses, the schools, teachers, and all other individuals and agencies interested in health and child welfare. If the cities in which the demonstrations take place devote every available resource to making them practical working programs for all communities, a valuable contribution will be made in the development of methods for the care and health education of all children.

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Child Labor Amendment to Be Sought.—"Federal protection must be restored to American children through amendment of the Constitution and the passage by Congress of another child labor law," declared Owen R. Lovejoy, general secretary of the National Child Labor Committee, addressing the Seventeenth National Conference on Child Labor at Providence, R. I., June 27.

Mr. Lovejoy announced this as the policy officially adopted by the National Committee, saying that any further attempt to secure federal legislation without a constitutional amendment would be folly now that the U. S. Supreme Court has successively found two federal child labor laws invalid on constitutional grounds. He said that the demand for an amendment comes from all over the country, including the South, where states' rights feeling is so strong. He quoted a telegram from Governor Thomas E. Kilby of Alabama favoring "an amendment empowering Congress to enact laws for the regulation of child labor."

The amendment suggested by the National Child Labor Committee, and read at the convention by Mr. Lovejoy, is as follows:

"Congress shall have power to regulate or forbid the labor of minors at an age, or under conditions deemed injurious to their health or morals. Such power shall be concurrent and not exclusive, and the exercise thereof by Congress shall not prevent any state from adopting other or further regulations, not inconsistent therewith."

Mr. Lovejoy said that this draft amendment protects the right of the states to go as far as they like, but enables Congress to set a minimum standard of national decency. It is intended, before this amendment is introduced in Congress, to submit it for approval to the Permanent Conference for the Abolition of Child Labor formed in Washington recently by representatives of national civic organizations.

The National Child Labor Committee, though it has entered into an active campaign for a federal amendment, will not diminish in any way its present efforts to improve state laws and administration.

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The European Anti-Epidemic Conference.—An important anti-epidemic conference was held in Warsaw, March 20-28, 1922. The conference was convened by the Polish Government, with the approval of the Council of the League of Nations and the help of the League Secretariat and Health Organization. The 27 powers attending the conference were Austria, Belgium, Bulgaria, Czecho-Slovakia, Dantzig, Denmark, Esthonia, Finland, France, Germany, Great Britain, Greece, Holland, Hungary, Italy, Japan, Latvia, Lithuania, Norway, Poland, Roumania, Serb-Croat-Slovene State, Soviet Russia, Soviet Ukraine, Spain, Sweden, Switzerland, and Turkey.

The object was to draw up a detailed report on the epidemic situation in eastern Europe, and submit plans for an international campaign. Russia has been ravaged by disease during the last four years, as a result of conditions arising from the war and revolution. The diseases most rife are typhus, relapsing

fever, and cholera. Of these the first two may be said to have become pandemic in Russia, and have increased more than thirty-fold as compared with their prevalence before the war.

The task of disease control has proved such a crushing burden to the border states, and is so obviously a matter affecting the whole of Europe, that as early as 1920 the Council, at the instance of the first Assembly, set up a League Epidemics Commission to assist in the work of fighting epidemics in east Europe. Last summer epidemics showed a distinct downward trend in both Russia and the border states, but in the autumn the famine on the Volga and in the Ukraine caused new waves of emigration, increasing the susceptibility to disease of the whole population, resulting in such an alarming increase of epidemic incidence that the Council felt impelled to issue a further urgent appeal to the governments that had undertaken to contribute to the funds of the Epidemics Comimssion to pay in the sums promised. This in turn led to the convening of the present conference by the Polish Government, with a view to preparing the ground for a continuation of the international anti-epidemic campaign on a larger scale.

The conference drew up a detailed plan of campaign, estimated to cost a million and a half pounds sterling, for definitely overcoming the menace of epidemics. This plan is divided into (a) immediate measures for checking the spread of epidemics beyond the borders of Russia and (b) a scheme of aid to the Russia and Ukrainian health services in an attack on the centers of infection. In this connection the conference registered its opinion that a purely defensive campaign on the frontiers of Russia would merely prolong the problem indefinitely, thus causing more expenditure in the end than a decisive anti-epidemic offensive undertaken for the purpose of quelling the epidemics at their source. The payment of the necessary monies for this campaign should be on a scale similar to that for payment of the League budget by members of the League. The conference also resolved that the execution of these measures and the control of the campaign should be entrusted to the League Health Organization and Epidemics Commission, and added a rider insisting on the necessity for all states that take part in this campaign being represented on these organizations. The Soviet Russian and Ukrainian delegations alone abstained from voting on this measure, and presented instead an amendment asking that a special international commission, on which all the powers concerned should be equally represented, be entrusted with the control of the anti-epidemic campaign. Finally, the conference approved a draft designed to serve as a model for a series of sanitary conventions to be concluded between the central and east European states taking an active part in the anti-epidemic campaign.

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Social Insurance Law in Jugoslavia.—The maternity benefit clauses of a new social insurance law went into effect early in 1922. In addition to the free medical treatment, sick benefit, medicines, and medical supplies received by all insured women in case of sickness, the insured mother is entitled to the services of a midwife, medical treatment if necessary, and a benefit amounting to three-fourths of the basic wage for 2 months before and 2 months after confinement. In the case of a live birth, the woman receives a premium equal to 14 times the basic daily wage. If the mother nurses her child, she receives a nursing benefit to be paid for 20 weeks, beginning with the third month after confinement. Non-insured wives of insured men receive in case of childbirth the necessary medical care, a benefit for 4 weeks before and 4 weeks after confinement, and the same premium as the insured woman.—*Sociale Praxis*, March 15, 1922. (*J. A. T.*)

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An International Congress for Health Education will take place in Paris, December 18 to 23, 1922. Doctors and public-health workers, teachers, and all who are interested in moral and social welfare work are invited to attend. The congress will give special consideration to the question of sex education from the point of view of the individual, of the family and of the race, and to the organization of prophylactic sex teaching among both sexes of every class. The program of the congress is divided into five sections: (1) General hygiene; (2) venereal diseases; (3) venereal prophylaxis; (4) sex education; (5) measures to be taken. In this latter section is included for consideration "the rôle of the Red Cross in the organization of health education and health propaganda." Further details may be obtained from the secretary-general of the Congress, M. Emile Weisweiller, 7 rue Mignon Paris.—*World's Health*, April, 1922.

Child Welfare in Denmark.—The government of Denmark is intending to amend the child welfare laws. A committee has already prepared a bill relating to parental authority and providing for the establishment of guardianship councils and public institutions for dependent children. A provision of the bill forbids the sale of tobacco to children under fourteen years of age and prohibits children from smoking in public places. A new law permits the state to distribute annually 250,000 crowns to municipal and private agencies for the establishment of day nurseries, trade schools, and vacation colonies for school children.—*La Protection de l'Enfance,* February, 1922. (*Mother and Child,* June, 1922, p. 24.)

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International Congress of the History of Medicine.—The third International Congress of the History of Medicine will be held in London from July 17 to 22. The congress will be opened by the minister of health at the house of the Royal Society of Medicine, after which foreign delegates will be received, and Dr. Singer will give his address. Receptions and meetings will be held at the Royal College of Physicians, Royal College of Medicine, the Mansion House, Royal College of Surgeons. Visits will be made to various places of interest, including Hampton Court Palace and St. Bartholomew's Hospital.—*Science,* June 16, 1922, p. 635.

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LEGISLATION — FEDERAL

(From bi-weekly reports of the National Health Council, May 15-June 15, 1922)

PROGRESS ON MATTERS PREVIOUSLY CONSIDERED

H. R. 10972. Pay of Army, Navy and Public Health Service. After having passed the House May 12, and Senate May 22, and having been satisfactorily adjusted in conference, this measure was sent to the White House on June 7, for the President's signature. The bill as finally passed is said to have met with approval among the commissioned personnel of the U. S. Public Health Service as well as the medical officers of the army and navy. (A table summarizing the provision for base service pay of officers was published in the A. J. P. H. for May, 1922.) If the cost of food in subsequent years should be reduced, the allowance for subsistence will be accordingly reduced. There is also an increase for length of service in the grade.

H. R. 10871. Army Appropriation Bill.—Passed the House, March 29, 1922. Passed the Senate with amendments, June 2, 1922. The bill as amended fixed the strength of the army at 133,000 men and 12,530 officers. $1,800,000 was appropriated by an amendment in the Senate for civilian military training camps, and $2,700,000 for the Officers Reserve Corps, the pay being increased in the Senate from $250,000 to $2,000,000. Reduction of the commissioned personnel from its present size to the figure named in the bill is to be accomplished through a selection board of general officers appointed by the President. (A. J. P. H. June.)

H. R. 2193. Habit Forming Drugs.—This bill, which passed the House on May 4, and the Senate on May 12, 1922, was signed by the President on May 26. S. J. Res. 201. Introduced by Mr. McNary, May 26, 1922. Referred to Committee on Foreign Relations. This resolution requests the President to propose an international conference for the suppression of the use of narcotic drugs, except for medical purposes. The purpose of such a conference would be to secure uniformity in narcotic legislation.

H. R. 8086. Prohibiting "Filled Milk."—Passed the House, May 25, 1922. This bill makes it unlawful to manufacture within any territory or possession or the District of Columbia, or to ship in interstate commerce any milk or milk product which has been blended with fat or oil other than milk fat. A penalty of $1,000 or a year's imprisonment, or both would be imposed for violation of the proposed act.

H. R. 7746. Regulation of Milk in the District of Columbia.—Favorably reported in the House, May 17, 1922. The object of this bill is to secure for the District of Columbia a clean, pure, and wholesome milk supply. It would require annual permits to be issued to dairies and dealers by the District Health Officer, would grade all milk, and would require the tuberculin test at least once a year for all grades. The health officer is given the power to suspend permits for cause, and to seize any milk coming into the District in violation of the law. Communicable diseases on dairy farms would be reported, according to the terms of the bill.

The Federal Maternity and Infancy Act. Opinion of the Attorney General of Massachusetts.—Forty-two states have now accepted the terms of the Act for the promotion of the welfare and hygiene of maternity and infancy. Since the recent opinion of Attorney General J. Weston Allen of Massachusetts, declaring this Act to be unconstitutional is of interest to sanitarians, we are including an abstract of it. This opinion, of course, has no effect at law. If Massachusetts should bring a suit in equity against those federal officials charged with the administration of the Act, the United States Supreme Court, having original jurisdiction, would try the case and decide the constitutionality of the Act. The attorney general, in presenting his opinion to the Massachusetts legislature, argues that:

a The Constitution does not give the Federal Government power to regulate the internal affairs of any state such as would occur in the enforcement of the Maternity and Infancy Act, whereby the Children's Bureau would actually have control of internal affairs of the states.

b The Act vests in the Federal Government certain powers relating to maternity and infancy that manifestly fall within the scope of the police power reserved specifically to the states in the Constitution by the Tenth Amendment.

c It is illegal for the state governments to yield powers granted to them by the Constitution and such powers can only be granted to the Federal Government through an amendment to the Constitution.

d The Act cannot be legalized upon the ground that it comes within scope of the "general welfare clause" of the Constitution as this clause conferred no power on Congress to enact legislation for general welfare, but was placed there to limit the taxing power of the Federal Government.

e The maternity and infancy statute is not an appropriation measure, but an attempted exercise of power over maternity and infancy, and is not even for the general welfare of the United States but only for certain states.

Many cases and court decisions are cited in support of this reasoning. A complete copy of the opinion appears in the *Congressional Record* for May 11, 1922, beginning on page 7371.

H. R. 11588. Giving Government Authority to secure land for hospital facilities by condemnation proceedings. — Passed the House June 5, 1922. Refusal of land owners in the vicinity of the Dawson Springs Sanatorium, Dawson Springs, Ky., to renew leases on land to be purchased for the benefit of the hospital recently built there at a cost of $2,500,000 resulted in the introduction of this bill in the House by Representative Kincheloe. After being favorably reported by the Committee on Public Buildings and Grounds it was passed without a record vote under a unanimous consent agreement. A similar measure has been presented to the Senate by Senator Stanley of Kentucky. The provisions of the bill are general in terms, giving the Secretary of the Treasury power to exercise the right of eminent domain and purchase property needed for government hospitals by condemnation proceedings in the federal courts.

H. R. 11589. Transfer of Leprosarium to Territory of Hawaii.—This measure, which provides for the transfer of the lands and buildings of the Federal Leprosy Investigation station at Kalawao, on the island of Molokai, to the territory of Hawaii, was favorably reported to the House of Representatives on June 8, by the Committee on Territories. The bill was placed on the House calendar.

H. R. Res. 297. International Conference to prevent pollution of navigable waters.—Passed the House June 5, under suspension of rules. This resolution requests the President of the United States to call a conference of maritime nations to adopt means for preventing the pollution of navigable waters by oil-burning and oil-carrying steamers. (A. J. P. H. June.)

S. 1911. Compensation for Federal Employees suffering injuries while in performance of duties.—Passed the Senate June 2, 1921. Passed the House June 5, 1922. This bill is an amendment to the Employees Compensation Act and empowers the United States Employees Commission to receive claims for injuries from employees sixty days after the date of injury, and also to receive claims for compensation for death within one year after the death. The purpose of the amendment is to extend the time of filing claims for the benefit of certain federal employees who would not receive benefits under the present law. The bill has gone to the President.

H. R. 10496. Free Mailing Privileges for publications for the Blind.—This bill, introduced into Congress by Miss Robertson of Oklahoma, passed the House on June 5 unanimously.

H. R. 11040. Sale of Marine Hospital in Cleveland.—Reported by the Committee on Public Buildings and Grounds, June 12, 1922. (A. J. P. H. June.)

NEW LEGISLATION

(Matters Not Previously Considered)

H. J. Res. 327. Regulation of Child Labor.—Introduced by Representative Fitzgerald, May 17, 1922. Referred to the Committee on the Judiciary. This bill proposes an amendment to the Constitution as follows:

Article

"The Congress shall have the power to regulate throughout the United States the employment of persons under 18 years of age."

A similar resolution (H. J. Res. 332) was introduced on May 24 by Representative Perlman.

H. R. 11707. Introduced by Representative Huddleston, May 19, 1922. Referred to the Committee on Interstate and Foreign Commerce. This bill would regulate interstate commerce in the products of child labor.

Decision of the U. S. Supreme Court on the Child Labor Tax Law.—On May 15, 1922, the U. S. Supreme Court handed down an opinion in the case of J. W. Bailey, Collector of Internal Revenue, etc., vs. the Drexel Furniture Company which held Title XII of the Revenue Act of 1918 to be an interference with state rights and as such unconstitutional. Briefly, Title XII provides that every person operating (a) any mine or quarry in which children under the age of 16 years have worked during any portion of the taxable year; or (b) any mill, cannery, workshop, factory, or manufacturing establishment in which children under the age of 14 years have worked or children between the ages of 14 and 16 years have worked more than 8 hours a day or more than 6 days a week, or after the hour of 7 at night or before the hour of 6 in the morning, shall pay, in addition to all other taxes, an excise tax of 10 per cent on the entire net proceeds received from the sale of the product of such mine, quarry, etc. The law was attacked on the ground that it was a regulation of the employment of child labor in the states—an exclusive state function under the Federal Constitution and within the reservations of the Tenth Amendment. It was defended on the ground that it was a mere excise tax levied by the Congress under its broad power of taxation conferred by Section 8, Article I, of the Federal Constitution.

In delivering the opinion Chief Justice Taft stated that the Court was of the opinion that obviously the legislation was aimed at restriction and regulation of the employment of child labor, and was not merely for the purpose of raising revenue. If such legislation were allowed, it would break down all constitutional limitations of the powers of Congress and completely wipe out the sovereignty of the states. The tax is called a penalty to coerce the people of a state to act as Congress wishes them to act in a matter which is strictly state business. "The good sought in unconstitutional legislation is an insidious feature because it leads citizens and legislators of good purpose to promote it without thought of the serious breach it will make in the ark of our covenant or the harm which will come from breaking down recognized standards," was a significant statement. The first Federal Child Labor Act of September 1, 1916, was declared unconstitutional on June 3, 1918, by the U. S. Supreme Court in the case of Hammer vs. Dagenhart (247 U. S. 251).

H. J. Res. 240. Amendment to Constitution on Child Labor.—Introduced by Representative Tague, May 31, 1922. Referred to the Committee on the Judiciary. This amendment would give Congress the authority to regulate, limit and prohibit the employment of persons under eighteen years of age. It is similar in language to the resolutions for a Constitutional amendment upon the same subject introduced in the House by Representatives Fitzgerald and Perlman.

S. 3629. Pensions for Red Cross Nurses.—Introduced by Senator Calder, May 20, 1922. Referred to the Committee on Pensions. A pension of $20 a month is given all women employed by the Surgeon General of the Army or Navy as nurses under contract or otherwise or who were employed by the American Red Cross or who rendered actual service as nurses for thirty

days or more during the war with Spain and the Philippine insurrection. Senator Calder also submitted on May 20 an amendment to H. R. 4 proposed to be offered by him. It would include Red Cross nurses in this latter pension bill. (A. J. P. H. June.)

Miscellaneous

S. 3616. Encouragement of public, quasi public and coöperative associations to slaughter live stock and operate stockyards. Introduced by Senator Norris, April 20, 1922. Referred to the Committee on Agriculture.

H. R. 11721. Reclamation of land in Alabama to be used by disabled U. S. Veterans. —Introduced by Representative Bankhead, May 20, 1922. Referred to the Committee on Irrigation of Arid Lands. This measure authorizes the Secretary of the Interior to obtain possession of 50,000 acres of arid land and reclaim it in the State of Alabama, and also authorizes the U. S. Veterans Bureau to establish a temporary school of instruction for disabled war veterans thereon.

S. 3665. Additional Funds for Treatment of Leprosy.—Introduced by Senator Ransdell, June 1, 1922. Referred to the Committee on Appropriations. The sum of $650,000 would be appropriated by this proposed act to enable the Secretary of the Treasury, through the U. S. Public Health Service, to provide care and treatment for persons afflicted with leprosy. The money, should the bill become a law, would be used in improving the government leprosarium at Carville, Louisiana, and also for the transportation and care of patients at that institution, as well as for the prevention of the spread of leprosy in the United States.

H. R. 11823. Authorizing issuance of bonds for compensation due disabled war veterans. —Introduced by Representative Vaille, May 27, 1922. Referred to the Committee on Interstate and Foreign Commerce. An amendment to the War Risk Insurance Act, this legislation permits the Director of the U. S. Veteran's Bureau to issue a bond with coupons covering compensation due veterans disabled in the world war. The purpose of the amendment is to eliminate the necessity of mailing checks monthly to beneficiaries.

H. R. 11970. Bureau to Study Criminal, Pauper, and Defective Classes.—Introduced by Representative Walsh, June 9, 1922. Referred to Committee on Judiciary.

S. 3700. Introduced by Senator Spencer, June 10, 1922. Referred to Committee on Education and Labor.

H. R. 11967. To Enlarge the Powers of the Juvenile Court of the District of Columbia. Introduced by Representative Goodykoontz, June 9, 1922. Referred to Committee of the District of Columbia.

C. A REVIEW OF LEGISLATION CONCERNING NURSES

1. *National*

All legislation pertaining to public health is, obviously, of interest to nurses and public-health nurses. The Sixty-seventh Congress has had before it, however, a number of bills which directly concern the members of the nursing profession. Perhaps the two most important are the Wadsworth-McKenzie pay bill (H. R. 10972) and the Lehlbach-Sterling reclassification bill (H. R. 8928).

The Wadsworth-McKenzie bill is designed to readjust the pay and allowances of the Army, Navy, Marine Corps, Coast Guard, Coast and Geodetic Survey, and Public Health Service. It passed the House on May 12, 1922, and the Senate on May 22, 1922, was considered in conference, agreed upon, and signed by the President.

The act takes effect on July 1, 1922. Section 13 of the act provides the following annual rates of pay for Army and Navy nurses (members of the Nurse Corps of the Public Health Service are not affected by this act):

First three years' service	$ 840
Second three years' service	1,080
Third three years' service	1,380
From tenth year on	1,560

In addition to their pay as nurses, superintendents of nurses receive a money allowance of $2,500 a year; assistant superintendents, directors and assistant directors, $1,500 a year; and chief nurses, $600 a year. Nurses are also allowed subsistence (60 cents a day) and an allowance for rental ($20 a month), the same as certain officers. (A. J. P. H., May.)

The Lehlbach-Sterling bill provides for reclassification of all civilian government employees. The bill passed the House on December 15, 1921, and was reported in the Senate on February 3, 1922, with several important amendments, some of which directly concerned nurses. In the bill as originally drawn, nurses were included with housekeepers under the Institutional Service. The Senate eliminated

this service entirely and placed nursing in the Professional and Scientific and Subprofessional Services. In the former service, there are six grades with compensation ranging from $1,800 a year to $7,200, depending upon the type of work performed, the amount of responsibility and other factors. Salaries in the Subprofessional Service are from $1,020 to $3,180 a year, divided into six grades. The nurses of the Public Health Service would be governed by this salary schedule.

Several pension bills which are pending contain provisions relating to nurses. The bill H. R. 4, which passed the House on February 1, 1922, and has been reported in the Senate, provides for a pension of $20 a month to all women who served as nurses for ninety days or more during the War with Spain, the Philippine Insurrection, or the Chinese Boxer Rebellion. A bill (S. 3629) has also been introduced to give a similar pension to nurses supplied by the American Red Cross to the Army for thirty days or more during the War with Spain. Another pension bill (H. R. 10031) would give $50 a month to nurses who served in the Civil War. No action has been taken on these last two bills.

2. *State*

During 1922 the legislatures of eleven states have been in session. Eight of the nine which began in January adjourned in April. The Massachusetts legislature is still in session. The Louisiana legislature convened in May and that of Georgia in June, both being now in session. Nursing legislation has been enacted or considered in several of these states.

In New York, the law relating to registration of nurses was amended by extending until January 1, 1923, the period under which nurses could apply for license to practice as registered nurses under waiver, and also extending until September 1, 1922, the date of waiver for attendants. This was done in order to accommodate many nurses who had not already taken advantage of the law, and who could only do so under an extension of it. Maryland passed laws requiring the registration of practical nurses and giving credit to nurses for training received in schools of public health. Massachusetts has passed an amendment to the school medical inspection law, by which suspicious cases among school children are referred to the school nurse or physician. A bill to increase compensation of the chairman of the board of registration in this state was defeated. In Virginia a law adding a clinic of doctors and nurses to the bureau of tuberculosis education of the State Board of Health was passed. A bill authorizing the State Department of Health to employ tuberculosis nurses was introduced in New Jersey, but not passed. There were no changes in nurse registration laws in Kentucky, Mississippi, or South Carolina.

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STATE HEALTH NOTES

Alabama

Dr. Leon C. Havens and Dr. Wm. C. Knipmyer, both formerly of the Johns Hopkins University School of Hygiene, have recently been appointed to the State Board of Health, Dr. Haven as director of laboratories, and Dr. Knipmyer to the Bureau of Epidemiology.

Colorado

Dr. Tracy R. Love is now serving as secretary of the Colorado State Board of Health, elected February 28, 1922.

The State Board of Health has recently put into operation a new $10,000 bacteriological and serological laboratory under the supervision of Dr. Wm. C. Mitchell. Diphtheria cultures are examined daily; blood is tested for Wassermann reaction, smears are examined for gonococcus and Vincent's angina; sputum is examined for tuberculosis. Under the venereal disease division eleven dispensaries are being maintained throughout the state, two new ones having been recently added.

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The antivivisectionists of Colorado, by means of the initiative and referendum, have filed a bill prohibiting experimental operations on animals except to relieve or cure the animals themselves, which is to be voted upon at the November election. If adopted, this bill would abolish all experimental study on problems of biology in both general and veterinary medicine; in fact, it would completely disrupt all necessary research work in that state and also eliminate the preparation of vaccine, serums, and other biological products. It would interfere, not only with human health but with the live stock interests, for it would check experiments on animal disease. Two years ago California defeated a similar measure by a quarter of a million votes. In 1923, a majority of the states will hold legislative sessions. Probably similar bills will come up

in each one of the sessions as the antivivisectionists are active everywhere. This type of legislation forms a public-health problem and deserves the antagonism of all sanitarians. The best way to combat such propaganda is by education of the general public as well as by a mobilization of medical and public-health groups. This whole matter is well presented in an editorial in the *Journal of the American Medical Association* for June 17, 1922. (*J. A. T.*)

Connecticut

The New Haven Health Center has done such good work, and there is so great a desire shown for its continuance by the citizens generally, that it is hoped that the Board of Finance will appropriate the necessary funds in the fall to entirely finance the Center for the year 1923. It will then be entirely absorbed by the Department of Health, with the exception of the Visiting Nurse Association. Philip S. Platt, C. P. H., the director, has planned to give half time to the Health Center from January to June, 1923, at which time he expects to resign.

Idaho

During a recent epidemic of typhoid at Gilmore, a mining camp 17 miles from Salmon, and 70 miles from the nearest physician, the Red Cross came to the assistance of the stricken camp and through the efforts of the public-health nurse saved the lives of all but one of the 18 victims. The community has been brought to a realization of the value of the public-health nurse and the services of the Red Cross through the overcoming of great difficulties in this case. At the time of the epidemic the snow was four or five feet deep in that section, snow had to be melted for water, wood cut, and trails shoveled, but, fortunately, this camp had a small hospital of eight beds which was very well equipped.—*The Red Cross Courier,* June 3, 1922, p. 6.

Illinois

A better baby conference and public-health exhibit of large proportion was held June 24 to July 4 in connection with the Trans-Mississippi Exposition and Pageant of Progress in Rock Island. For this purpose the Exposition secured the use of the elaborate health educational exhibit equipment owned by the State Department of Public Health, which furnished the professional services of a physician and nurse in connection with the organization and direction of the better baby conference. The local health officials and many of the physicians gave their undivided support and assistance toward making a success of the undertaking, which was one of the biggest of its kind along the Illinois-Iowa line.

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The State Department of Health has arranged for a complete epidemiological study in Marshall, where typhoid fever has been endemic for some years. The Department has installed an emergency liquid chlorinator, and a careful examination will be made of all public and private water supplies and sewage disposal. The mobile diagnostic laboratory has been stationed in Marshall. Tests will be made of specimens from residents giving a history of typhoid fever as well as those engaged in handling milk and other food.

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Two important public-health conferences will be conducted in Chicago during the celebration of the Pageant of Progress Exposition, July 29-August 15. One will deal with the production and sale of safe milk supplies; the other will be concerned with the use of toxin-antitoxin as an immunizing agent. The State Department of Public Health is taking an active part in arranging for these meetings, having already issued invitations to certain representative public-health officials, milk dealers, dairymen, physicians and others who are particularly concerned.

The leading purpose of the conference on safe milk supplies will be the drafting of a model ordinance suitable for adoption by municipalities throughout the country. In this connection the State Department of Public Health is coöperating with the University of Illinois, and the State Department of Agriculture has worked out an ordinance which will be presented for adoption by the conference.

The other conference will be devoted largely to a discussion of the practicability of using toxin-antitoxin on a large scale for preventing diphtheria.

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Dr. Samuel S. Winner, chief district health superintendent of the State Department of Public Health, has organized the twenty-odd physicians on the field staff into three groups that are assigned to the northern, southern and central sections of the state. Each group has a secretary and holds bi-monthly meetings with Dr. Winner, who takes advantage of these

opportunities for personally presenting the policies of the department and for discussing field problems, particularly those of an epidemiological nature. The meetings held thus far have proved to be so helpful for all concerned that the scheme is now considered as a permanent function of the field service.

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A recent outbreak of 25 cases of typhoid fever on a single milk route in Kewanee caused the State Department of Public Health to send its mobile diagnostic laboratory to the assistance of local health officials in connection with an investigation of the situation. As a result, the source of the epidemic was located in the person of a carrier who handled milk on one of seven dairy farms that supplied all the milk for the route in question. The history of the carrier is unusual in that it shows no record of an attack of typhoid fever.

The successful outcome of this investigation has led the Kewanee health officials to start a movement that will embrace the medical examination of all milk and food handled in that city with the purpose of locating any other typhoid carriers that may be a source of danger to the public.

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It is reported that a physician in St. Davis, Illinois, paid $22.50 to the court in Canton on June 2 for failure to report certain births which had occurred in his practice. The complaint against him was brought by the local state's attorney at the request of Dr. H. T. Burnap, special agent of the State Department of Public Health.

On June 7 the local registrar of vital statistics at New Miden, paid $17.50 in fine and costs for a violation of the law which specifically provides that local registrars shall forward to the State Department of Public Health on or before the tenth day of each month all birth and death certificates received by him during the last preceding month. This prosecution resulted from charges preferred by a special agent of the Department and marks the opening of a series of legal proceedings against delinquent registrars.

Altogether there are some 1,425 local registrars in the State and 20 per cent of these, or approximately 300, have been habitually delinquent in filing their monthly reports according to state records. In some pronounced cases the monthly returns have been delayed for six and eight months. This situation has created an evil appearance among the physicians, the undertakers and the public in the communities concerned, for each of these groups as well as the local registrar bears a definite responsibility in connection with birth and death registration.

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The Supreme Court of Illinois has recently delivered an important and interesting opinion concerning public health, a copy of which appears in the U. S. *Public Health Reports* for May 26, 1922. A typhoid carrier, named Jennie Barmore, was quarantined by the Chicago Health Department. Due to the intervention of various antimedical groups, she was induced to apply for a writ of habeas corpus. In refusing to grant the writ, the court delivered an essay on sanitary law worth perusal by all sanitarians. The court stated that the preservation of the public health is one of the sovereign duties of the state, that it is a reasonable exercise of its police power, and that by legislative enactment this power may be delegated to ministerial boards, such as the state health agency. The court discusses scientifically the danger from human infection carriers and concludes that the restraint by quarantine of a typhoid carrier is a valid exercise by the state of its authority. Such action was not unreasonable, so as to be illegal, and the rules governing the action were by no means arbitrary. The Chicago Department of Health acted as agent for the State Department of Health and the quarantine was authorized by the latter body. Among the significant statements of the court are these:

"The health of the people is unquestionably an economic asset and social blessing, and the science of public health is therefore of great importance. Public-health measures have long been recognized and used, but the science of public health is of recent origin, and with the advance of the science, methods have been greatly altered."

"Among all the objects sought, to be secured by governmental laws, none is more important than the preservation of public health."—People *ex rel.* Barmore v. Rorbertson *et al.*, 134 N. E. 815. (*J. A. T.*)

Indiana

The Housing Division of the Indiana State Board of Health has added one more inspector, whose entire time will be given to inspecting and scoring rural homes. It is expected that he will be able to inspect and score five hundred homes in different parts of the state in one year.

The State Health Commissioner and the Sanitary Engineer made a sanitary inspection of Winona Park on Winona Lake, Kosciusko County. This park is conducted upon the Chautauqua plan, and not infrequently it has twelve to fifteen thousand persons in one day. There are two large auditoriums, five large hotels and two hundred cottages. This is the home of Billy Sunday, the evangelist. The inspection found the water supply and drainage excellent. Two very popular springs were suspected of not supplying good water. The inspection of these springs and analysis of the water they supplied showed them to be pure. Winona Park is well supplied with sewers, and sewage is disposed of in septic tanks of ample size.

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The Indiana Health Exposition, which closed May 29th, was a great success. Praise came in from all sides, yet the attendance of close on to 100,000 was not quite up to expectations. All commercial exhibitors expressed themselves as well satisfied, and the educational exhibitors in a combined communication expressed full satisfaction. The Indiana State Fair Association gave the use of the Coliseum, 80,000 square feet, and also the use of the Women's Building, without charge. Governor Warren T. McCray with his wife and family visited the Exposition one afternoon and evening. He has written a letter highly approving and expressing his satisfaction with the Exposition.

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With the help of the International Health Board an all-time health officer has been placed in Fulton County. Rochester is the county seat. This county has about 17,000 inhabitants. Dr. John L. Hydrick from the International Health Board will help the all-time health officer, Dr. Arthur L. Oilar, for perhaps two months. The force will consist of the all-time health officer, one trained sanitary inspector, one nurse and one stenographer. The International Health Board will pay the salary of the all-time health officer.

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Dr. Will Shimer, for twelve years superintendent of the laboratory of hygiene of the Indiana State Board of Health, resigned June 1st. His place has been filled by the appointment of Dr. A. G. Long, M. D., and C. P. H. Dr. Long assumed control on June 12.

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The first installment of money according to the Sheppard-Towner bill was received and the extensions and activities for the maternity and child hygiene division have been started.

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The entire State Board of Health, five in number, will make the annual inspection of the Indiana State Sanitorium at Rockville, Indiana, June 20.

Kansas

The Division of Water and Sewage is making an extensive investigation to determine the degree and sources of pollution of the Kansas River.

Mr. W. J. Davies has been appointed acting state registrar for Kansas.

Massachusetts

Fifteen thousand dollars has been appropriated from the supplementary budget of the Legislature for use in "extending the activities of the Division of Hygiene in the protection and care of mothers and conservation of the welfare of children," this amount to be expended during the remaining months of the current year.

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Miss Frances B. Mayer has been appointed Special Investigator to the Subdivision of Venereal Diseases of the State Department of Public Health. This appointment became effective May 15th. Miss Mayer has done exceptionally fine work in connection with the Out-Patient Department of the Boston City Hospital.

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The following order was adopted by the House of the Massachusetts Legislature on June 9, 1922:

"Ordered, That the Department of Public Health is hereby directed to investigate the entire subject of tuberculosis in the Commonwealth, including the matter of state, county and municipal tuberculosis hospitals or hospital district created by legislative act; ascertain the cost of construction and present maintenance cost of said state, county and municipal tuberculosis hospitals or hospital district created by legislative act; make an investigation of the present physical valuations of said property in detail, and report as to the advisability of the Commonwealth taking over and thereafter maintaining either county or municipal tuberculosis hospitals or hospital district created by legislative act, together with an estimated statement of the cost necessary to effect such transfer of said hospitals to the

State. Said Department shall in its report to the next General Court, to be made on or before the second Wednesday in January next, also report what, in its opinion, should be the general policy to be pursued by the Commonwealth, both as to methods of treatment and distribution of expense thereof in relation to the entire subject of tuberculosis in any state, county or municipal hospital, or hospital district created by legislative act, within this Commonwealth."

An appropriation of $3,000 has been granted the State Department of Public Health to make the investigation of the status of tuberculosis through the state, as authorized above.

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The annual convention of the International Association of Dairy and Milk Inspectors will be held in Boston this year if the cordiality of the invitation has anything to do with it. Invitations have been extended by a large number of officials and organizations. It is evident that the convention is not considered a local matter but a New England affair, as indicated by its widespread endorsement. New England has always been foremost in supporting efforts leading to improvement in dairy products, and now should receive the encouragement and inspiration that would follow a meeting of this body in her territory.

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School clinics for children three or more years behind their grades have been established in Massachusetts, through the coöperation of the State Department of Mental Diseases and the Department of Education. Approximately 3,000 children have been examined since the organization of the clinics in 1921. The work has been constructive from the start, the purpose being to ascertain exactly what school progress the child is making; to insure that he is not worked beyond his capacity, and to ascertain any special reasons for his lack of development.—*Boston Medical and Surgical Journal*, Jan. 26, 1922. (*Mother and Child*, June, 1922, p. 278.)

Michigan

A coöperative inspection of Michigan summer resorts is being carried on by officials of the State Health Department, and an assistant engineer left Lansing the last of June in charge of the laboratory truck on the annual tour. All resorts inspected by the portable laboratory will be placed in one of four classes —excellent, satisfactory, dangerous, or unsafe, and the names of the resorts and responsible officers with their classification will be published. Classification will be based on water, milk, and food supplies, sewage and garbage disposal, housing conditions, bathing beach sanitation, drainage and mosquito control, neatness and general appearance of the grounds.

According to Dr. Olin, state health commissioner, resort sanitation as conducted by the Michigan Department of Health does not consist necessarily of mere inspection of garbage cans and prying into nuisances, but consists of carrying on in the field the functions of the Department. All laboratory examinations are made free of charge by the laboratory bureau. Reports of the findings will be made at the close of the inspection tour, and advice and recommendations will be meted out accordingly by the Department.

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Dr. John W. Towey, tuberculosis clinician of the traveling clinic of the Michigan Department of Health, has resigned his position to become superintendent of the new Delta-Menominee County Sanatorium at Powers, Michigan. Dr. Charles A. Wilson of Detroit, formerly superintendent of the Detroit Tuberculosis Sanatorium, will act as clinician during the summer.

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The State Department of Health is starting preliminary proceedings for the prosecution of 25 local registrars of vital statistics in 18 different counties, because of alleged failures on their part to comply with the state law requiring that notices of all births and deaths within the counties be filed with the state authorities before the 5th of each month. These registrars are liable under the law to a $200 fine and 60 days' imprisonment.—*Survey*, April 1, 1922.

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In 1921 Detroit spent for the maintenance of the health department $1,527,355, or $1.62 per capita. Of this sum, 73 cents were devoted to the Herman Kiefer Hospital. The maintenance item, less hospital charge, is 89 cents per capita. The death-rate during 1921 was 12 per 1,000 population.

Mississippi

Among bills which were enacted into laws by the Mississippi Legislature during 1922, one amends the present practice of dentistry law. It provides that dental hygiene shall be recognized as a profession and those practicing it

shall be examined and licensed in order to permit them to practice. This practice shall be only under the supervision of a registered dentist and in his employ. Another bill provides for the procedure in dealing with nuisance cases. It empowers the State Board of Health, when informed by a county health officer or otherwise of the existence of any matter likely to spread epidemics and to affect public health, to declare same a nuisance. Proceedings shall forthwith be commenced by the proper prosecuting officer in the district. A third law enacted that any physician guilty of performing a criminal abortion or guilty of violation of any anti-narcotic laws, or an habitual narcotic drug addict shall have his license revoked and be disbarred from practice. Appropriation acts carried $124,000 for the State Board of Health for general expenses for each of the years 1922 and 1923; $16,000 was appropriated for the prevention of venereal diseases.—(*J. A. T.*)

New Jersey

Paterson reports a population in 1921 of 137,893, an increase of 13,079 in six years, and a death-rate of 12.68, which the Board of Health states is a decrease of 3.28 since 1914, notwithstanding the increased population. The total number of deaths reported in 1921 was 1,739. Early in 1921 a full-time health officer, Dr. J. Alexander Browne, was appointed by the Board of Health, and in December a registrar of vital statistics. There were 259 deaths reported of infants under one year, or a crude death-rate of 18.77 per 1,000. One hundred and fifty still-births were recorded. New Jersey has recently been admitted to the United States Registration Area for Births, having attained a reporting efficiency of 95 per cent of the total births. In 1921, 3,154 births were recorded in Paterson, giving a birth-rate of 23.18 per 1,000. During the year there were reported 2,902 cases of contagious diseases, whooping cough leading with 775, followed by diphtheria, 386; tuberculosis, 279, and scarlet fever, 226. Twenty-four cases of typhoid fever were reported, all but one of which were imported from other communities.

New Mexico

A portion of the Sheppard-Towner appropriation allotted to the state has been assigned to the State Bureau of Public Health. This Bureau has made plans for its part of the activities for the protection of maternity and infancy to be conducted by the New Mexico Department of Public Welfare. Miss Margaret Tupper, a Vassar graduate of large experience in public-health nursing and social work, directs both the divisions of Child Hygiene and Public Health Nursing.

The Bureau plans to have a field demonstrating nurse, whose activities would be those usually conducted by a public-health nurse in the fields of prenatal care, infant hygiene, baby health and pre-school hygiene. A county would be used as a unit and this nurse would spend three months in each of four counties, with an additional week in each case for transferring her station. This covers a period of thirteen months. This nurse would receive $175 a month and an allowance of $83.33 a month for automobile upkeep, the nurse supplying her own automobile, as is the case of all public-health nurses in the state.

A second field worker will be appointed to act as a midwife instructor. The local health nurses will organize the midwives into classes at convenient points in preparation for the visit of the instructor, who will give a series of twelve lessons to each class. After the midwives have received instruction, the local nurse and health officer for the county can then maintain a close check upon their work. The salary and traveling expenses of this nurse will be the same as for the demonstrating nurse. Parental instruction and directions for the care of infants and young children have been mailed to mothers of all babies whose births have been reported to the Bureau since the fall of 1919. These instructions are in both English and Spanish, and it is proposed to have enough of these printed that the field workers and public-health nurses may have plenty in addition to those being mailed constantly from the Bureau.

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On May 25, Dr. A. G. Shortle, secretary of the New Mexico State Board of Public Welfare, died at his home in Albuquerque, from septicemia. The Board of Public Welfare has all of the powers and duties of the former Board of Health.

Miss Catherine Taylor, public-health nurse of Chaves County, has resigned to take a similar position in California. Her successor has not yet been appointed.

Miss Carrie Wise, Red Cross nurse of Roswell, has been appointed school nurse by the board of education of that city.

Dr. C. M. Bueler, Tucumcari, has been appointed health officer of Quay County, succeeding Dr. W. Leming, who resigned.

H. F. Gray, state sanitary engineer, will spend several months on the road, inspecting water and sewerage works. Several new installations are under way, or will soon be undertaken, as a number of towns have voted bond issues for such purposes. These are tangible results of nearly three years' effort on the part of the State Bureau of Public Health.

New York

The twenty-first annual conference of sanitary officers and the fourth annual conference of public-health nurses of New York State were held jointly under the auspices of the State Department of Health at Saratoga Springs, June 27-29, with an attendance of nearly 1,000.

At the joint sessions addresses were delivered by Commissioner Biggs, Governor Miller, Dr. Victor C. Vaughan, President Livingston Farrand, Dr. Richard A. Bolt, Prof. E. V. McCollum, and Dr. Florence L. McKay, director of the new Division of Maternity, Infancy, and Child Hygiene, in which great interest was manifested.

The sessions of the health officers were addressed by Prof. George C. Whipple, Dr. Hibbert W. Hill, Dr. George E. Vincent, Dr. F. W. Sears, Dr. O. Z. Bouton and Dr. B. P. MacLean. At the special sessions for nurses, the speakers included Bailey B. Burritt, Miss Frances Meyer and Miss Wilhelmina Beyers. A program of music and speeches was broadcasted from Schenectady, which included a five-minute talk on the work of the health officer by Dr. Biggs.

Dr. Stanton P. Hull, of Grafton, was elected president of the Sanitary Officers Association, and Dr. Montgomery Leary, of Rochester, secretary. The Eastern New York Public Health Association held its annual dinner at Albany June 22, and 23 physicians, who have been taking the post-graduate course in public health, received certificates. Dr. William C. Tredor, of Scotia, was elected president.

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On July 1 the Division of Child Hygiene became the Division of Maternity, Infancy and Child Hygiene, under the Davenport Act.

Miss Wilhelmina Beyers, R. N., has been temporarily appointed by the State Department of Public Health as instructor of nurses in pre-natal, maternity and child welfare work. She started on her new work June 15. Miss Beyers is well qualified for this position. She was graduated from Kings County Hospital, and later had charge of the obstetrical division of that hospital for a year. During the war she was in charge of the officers' surgical and medical wards of United States Base Hospital No. 37 in England for one year, and has since spent three years in the Maternity Center Association of New York City, which work included pre-natal and maternity work and organizing new centers.

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In order to prevent blindness resulting from the infection of the eyes at birth, the Public Health Council, at a meeting held February 7, 1922, adopted an amendment to the New York State Sanitary Code by adding to Chapter II a new regulation known as Regulation 10, to read as follows:

"Precaution to be observed for the prevention of ophthalmia neonatorum: It shall be the duty of the attending physician, midwife, nurse or other person in attendance on a confinement case to use at the time of the delivery prophylactic measures such as the instillation into both eyes of one per cent solution of nitrate of silver, or an equally efficient agent, to prevent ophthalmia neonatorum or the development of sore eyes in the infant due to infection at birth."

This regulation went into effect April 1, 1922.

According to the records of the New York State Commission for the Blind, there are in the state nearly 1,000 persons blind from ophthalmia neonatorum. Until 1920 no record of these cases was kept by the State Department of Health. During that year 66 cases were reported.

North Dakota

Dr. Austin Egdahl has been recently appointed director of the State Public Health Laboratory at University.

The State Medical Association met at Jamestown, June 1 and 2.

Oklahoma

The State Health Department has put on a campaign of education to arouse sentiment in the southeastern part of the state toward the eradication of malaria and mosquitoes, expecting to ask the legislature for an appro-

priation. It is also hoped that some federal aid may be obtained.

Three tuberculosis hospitals under the management and control of the State Health Department are now open, one of 100 beds in the western part of the state at Clinton, one in the eastern part in the mountains near Talihina and one for negroes near the negro town of Boley.

As usual at this time of the year, the State Health Department is putting on free clinics in various towns for vaccination against typhoid fever.

There have been more calls for anti-rabies serum to be delivered free during the last ninety days than past records show for the same period.

The Vital Statistics Department has improved to such an extent that the matter of admission to the federal registration area has been taken up with the Census Bureau at Washington.

The work of controlling venereal diseases has taken on new activities and the physicians of the state are taking more interest in their reports since it is possible to obtain the necessary drugs free for the poor and indigent.

Pennsylvania

Suits for damages totaling nearly $300,000 have been brought against the Blue Ridge Water Supply Co. of Walnutport, Pa., by some thirty residents who allege that the supplying of polluted water caused typhoid, sickness and death. T. McKeen Chidsey, of Easton, Pa., counsel for the plaintiffs, states that owing to water shortage the flow of a spring was diverted to one of the water company's reservoirs through an open channel. It is alleged that this channel received pollution from various sources, including the overflow from a privy. It is maintained that this spring should have been protected from possible contamination and that the water should have been conveyed through closed conduits. Mr. Chidsey states that under Pennsylvania practice the plaintiffs in such cases "need to aver and do aver only the fact that they drank the water and that the water was polluted due to neglect."

From C. A. Emerson, Jr., chief engineer, Pennsylvania Department of Health, it is learned that of 53 cases of typhoid during the outbreak, about 80 per cent had onsets from June 13 to 21, 1921. All the persons suffering from typhoid had used the public water supply and no other probable common cause was found. Laboratory findings of the State Department of Health indicated sewage contamination of the water but no active typhoid case or carriers could be located on the watershed. From circumstantial evidence it seems that the outbreak was caused by the water supply. One of the springs forming the supply, Mr. Emerson states, was not far from a public highway and may have been polluted while being used by an itinerant typhoid carrier.

Walnutport borough has a population of about 1,000. The water supply in question, Mr. Emerson states, was never approved by the State Department of Health. In fact, its existence was only learned of by chance a few weeks before the outbreak.—*Engineering News-Record,* June 8, 1922. (*J. A. T.*)

South Carolina

Orangeburg is actively fighting malaria through mosquito control, having reduced the cases in one year about 50 per cent. There has been practically no typhoid in the city within the year, only three cases having been reported, and two of these were from outside the city. Inspector P. G. Brigham, M. D., has had all privies inspected and made fly-proof, and in cases where instructions are not obeyed they are nailed up and sealed by the Board of Health. All closets are cleaned every 14 days and stamped with a sticker stating the date cleaned. In past years typhoid has been prevalent in this district, particularly among the great number of negroes. Due to the most careful surveillance, it has now been practically wiped out in this section.

West Virginia

Last spring a strong agitation arose in Bluefield for a substitute for the old mayor-and-council type of government, which in the minds of many people had too long paid political debts out of the city treasury. A new charter was drafted by a committee providing for the modern commission-manager type of government. Among the first things accomplished was a change from slipshod methods of disbursing to an up-to-date systematic plan of control. A part-time health officer gave way to one on full time. A city physician, a sanitary inspector, public-health nurses and a bacteriologist were appointed, and for the first time the people felt that their health was adequately safeguarded.—Clarence E. Ridley, *The American City,* June, 1922, p. 563.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Leukocytic Reactions to Morphine.—The results show the same general leukocytic reaction to morphine in rabbits, dogs and men, namely, a relatively slight leukopenia, lasting for about an hour after the drug, followed by a more pronounced leukocytosis maintained for ten hours or more, and returning to normal within twenty-four hours. The differential counts show a large relative increase in the number of polymorphonuclear neutrophils, with a diminution in the percentage of lymphocytes, and relatively insignificant changes in the percentage of the other leukocytic elements. It is obvious that, in estimating the diagnostic value of a white blood cell count after the subcutaneous administration of morphine, allowance must be made for the effect of the drug on the count.—Chauncey D. Leake, Jour. A. M. A., 78, 1687 (1922).

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Application of Mallory's Connective Tissue Stain to Formaldehyde-Preserved Tissues.—The several steps are:

1. Preserve in formaldehyde solution.
2. Prepare sections in the ordinary manner.
3. Mordant sections in 1 per cent aqueous chronic acid from forty-eight to seventy-two hours.
4. Wash in water.
5. Stain in 0.5 per cent aqueous acid fuchsin from five to twenty minutes.
6. Wash quickly in water.
7. Fix stain in 1 per cent aqueous phosphomolybdic acid from one to five minutes.
8. Wash in water two minutes.
9. Counterstain in the aniline blue orange G mixture from five to twenty minutes; the sections should be somewhat over-stained. The composition of this solution is:

Aniline blue (Gruebler, water soluble)	0.5 gm.
Orange G (Gruebler)	2.0 gm.
Oxalic acid	2.0 bm.
Water	100.0 c.c.

10. Dehydrate rapidly. The excess of aniline blue is removed largely in the lower alcohols; the degree of differentiation should be controlled by microscopic inspection.
11. Clear and mount.—Leslie B. Arey, *Jour. A. M. A.*, 78, 1708 (1922).

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The Occurrence of Diphtheria Bacilli in the Vagina.—The authors refer to recent reports that diphtheria bacilli were found in from 14 to 23 per cent of the vaginal secretions examined. The writers examined 209 vaginal smears for diphtheria bacilli, including 58 healthy gravidae, and 30 cases of retroflexion, or dysmenorrhea prolapse, oöphoritis or adnexitis. In none of the cases were they able to discover genuine diphtheria bacilli, although spurious diphtheria bacilli were found in 45 per cent of the smears.—F. Loenne and P. Schugt, *Zentralbl. Gynaek.*, 46, 93 (1922); Jour. A. M. A., 78 1770 (1922).

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A Simple Method for Demonstrating Tubercle Bacilli in the Spinal Fluid.—Five cubic centimeters of spinal fluid is collected in a well cleaned centrifuge tube. To this, from one-third to one-half volume of 95 per cent alcohol is slowly added, the tube being gently shaken all the while so as to obtain an evenly distributed cloud of coagulum rather than a single thick ring at the top. More or less alcohol may be added according to the density of the coagulum. In case very little or no coagulum is formed, a drop or two of dilute solution of egg albumin may be added. The optimal amount of coagulum is one that forms a milky appearance, such as one would call a "trace" in urine analysis. The tube is then centrifuged at a fairly high rate of speed for one-half hour, or longer in case the precipitate is scanty. The supernatant fluid is then carefully decanted, leaving the albuminous precipitate in a very tiny drop of fluid. With a wire or a capillary pipet, this is then transferred to three or four slides, care being

taken not to touch the sides of the tube in withdrawing the loop, since the material may stick to the tube and be lost. One slide may be reserved for Gram stain or differential count, and the rest stained by the Ziehl-Neelson method. In the last year this method was used in seven successive cases of tuberculous meningitis at the Massachusetts General Hospital, and tubercle bacilli were found in every case without prolonged search. Since the method was devised, surgeons of the genito-urinary department of the Massachusetts General Hospital have used it with considerable success in demonstrating the tubercle bacilli in the urine of patients with renal tuberculosis. However, they found it necessary first to centrifuge the specimen at a low speed for five minutes to throw down cells and debris. Not many bacilli will be caught in this sediment on account of the relatively high specific gravity of the urine. The clear, supernatant urine is then poured off and treated as outlined above.—Sheo-Nan Cheer, *Journal A. M. A.*, 78, 1612 (1922).

✣

New Technic for Wassermann Test.—The author uses a 0.5 per cent suspension of washed human red cells in saline; clear blood serum of guinea-pigs obtained by cardiac puncture; two antigens, (1) the acetone insoluble lipoid antigen of Noguchi, prepared from human heart; (2) cholesterinized extract of human heart, alcoholic. The patient's serum is obtained by puncture of a vein, must be clear and is heated to 56° C. for twenty minutes. Rabbits are immunized against human erythrocytes by four intravenous injections followed by two or more injections intraperitoneally. When the serum titrates 800 or over the animal is bled from the ear or heart and the serum is dried on filter paper. Titrations of all reagents are made before use, nearly in accordance with the directions of Craig. Buttles claims for his technic, which he describes in detail, that the combining of erythrocytes, saline and complement, decreases the number of pipetting operations. Errors from inaccurate pipetting of small amounts of complement and of cell suspension are avoided, as well as errors from inaccurately graduated pipets. The relation between amount of cells and of complement is the same in all tubes. The first incubation furnishes a control against any non-specific hemolysis.—E. H. Buttles, *Am. Jour. Syph.*, 6, 280 (1922); *Jour. A. M. A.*, 78, 1841 (1922).

✣

Typhoid Bacilli in Spinal Fluid.—Typhoid or paratyphoid bacilli were found in the spinal fluid in 93 per cent of fifteen children examined from the fifth to the thirtieth day of typhoid or paratyphoid. There did not seem to be any connection with the duration of the disease or its clinical form. In two children with symptoms suggesting encephalitis, the fluid contained typhoid bacilli, although none could be cultivated from the blood.—G. Caronia and L. Auricchio, *Pediatria,* Naples, 30, 337 (1922); *Jour. A. M. A.*, 78, 1852 (1922).

✣

A Facultative Spore-Forming Lactose-Fermenting Organism From Iowa Surface Waters (B. macerans).—A Gram-negative sporing bacillus capable of fermenting lactose and growing aerobically was isolated from two chlorinated surface water supplies in Iowa. The morphological, cultural and physiological characteristics are detailed.—J. J. Hinman, Jr., and Max Levine, *Jour. Am. Water Works Association,* Vol. 9, No. 2 (1922).

✣

Streptococci in Chronic Respiratory Infections.—The streptococcal flora in various samples of sputum from the same sample of sputum from the same source, is, in bronchial asthmatics, fairly constant and quite complex, from eight to fourteen types of streptococci occurring in single specimens. The streptococcal flora in various particles from the same sample of sputum does not vary. The simple method of using a twenty-four hour serum broth culture of a washed particle of sputum as a basis for vaccine preparation seems as efficient as any, the streptococcal flora in such a culture being approximately parallel to that in the sputum itself. There is in general a close parallelism between the grouping of streptococci arrived at by applying Brown's method of classification and through immunological methods (agglutinations).—W. Ray Hodge and Cecile Cohen, *Studies Res. Div. Connaught Antitoxin Laboratories,* Vol. 1, p. 132 (1922).

A Cultural Study of Anaerobic Spore Bearing Bacteria.—The Barber single cell technic is the most feasible method of obtaining anaerobic spore-bearing in pure culture. The vaseline-seal boiling method is the most reliable way of obtaining anaerobiosis, especially in liquid media. The technics now commonly used, involving the use of pyrogallic acid and sodium hydroxide, vacuum exhaustion, hydrogen displacement and platinized carbon, were found to be unreliable. If the proper degree of anerobiosis is maintained the bacteria will grow well on relatively simple media, provided the hydrogen ions are adjusted to the optimal degree of concentration, which was found to be P_H 7.2. A certain number of the organisms studied produced no proteolysis on any of the media. Of those organisms studied which produced proteolysis, two groups may be made, the strongly proteolytic and the feebly proteolytic. B. putrificus and B. tetani must be placed in the feebly proteolytic group. Proteolytic activities of these bacteria are not lessened by the presence of fermentable carbohydrates. Morphology offers but little aid in the differentiation. The hemolytic properties may in some cases be of differential value.—Morton C. Kahn, *Jour. Med. Res.*, 43, 155 (1922).

✣

The Diameter of Human Red Corpuscles at Different Ages.—The average diameter obtained for adult men and women between 30 and 50 years old was 7.55 microns. At birth, however, the red cells are considerably larger, measuring 8.62 microns across. From this period they gradually decline to the age of 18 months when the diameter is 7.13 microns. Somewhere about this figure is retained till puberty is reached, when a sudden increase to 7.68 microns is noticed. The significance of these alterations is unknown.—Saragea, *C. R. Soc. Biologie*, Feb. 11, 1922; *Brit. Med. Jour.*, April 8, 1922.

✣

A Method for the Diagnosis of Death.—Under normal conditions the reaction of the blood is P_H 7.45 while that of the tissues is between 6.8 and 7.0 but within about 4 hours of death the reaction of the latter is distinctly acid. In the test for the presence of this acidity the author takes two silk threads. One of these is dipped in an acid solution of bromthymol-blue and is of a yellow color, while the other is dipped in an alkaline solution of the same dye and is of a blue color. These two threads are then passed in the form of a seton through a fold of the skin of the thigh, and left in position for one hour, after which they are withdrawn. If the patient is really dead, it will be found that the yellow thread retains its color unchanged, while the blue thread has become yellow in consequence of the post-mortem formation of acid. The threads, which can be prepared beforehand, may be preserved for a long time in the absence of light without deterioration.—Rebello, *C. R. Soc. Biologie*, March 18, 1922; *Brit. Med. Jour.*, April 29, 1922.

✣

The Excretion of Spirocheta Pallida Through the Kidneys.—Spirocheturia appears to be a striking phenomenon of the entire group of spirochetal infections. Syphilitic spirocheturia occurs in the stage of septicemic syphilis, in both the congenital and acquired infections. Spirocheta pallida, as is spirocheta icterohemorrhagica, may be excreted in enormous numbers through the convoluted tubules. During such excretion through the kidneys the spirochete of syphilis suffers greater destruction than does the icterogenic parasite, so that fewer spirochetes may reach the urine in syphilis than in infectious jaundice.—A. S. Warthin, *Jour. Inf. Dis.*, 30, 569 (1922).

✣

The Staining of Spirochetes in Cover Glass Smears by the Silver-Agar Method.—The method is as follows:

1. Prepare smears on No. 1 cover glass.
2. Dry thoroughly in the air.
3. Place in absolute alcohol 3 to 5 minutes.
4. Wash in distilled water.
5. Rinse cover glass with smear in 2% silver nitrate. Cover the smear side with another perfectly clean cover glass also rinsed in silver nitrate solution. Place the adherent pair of cover glasses carefully, so as not to separate them, in a bottle of 2% silver nitrate, and place in incubator for 1 to 2 hours; then remove the cover glasses from the silver nitrate solution and separate them.

6. Place the cover glass with the smeared side up in the following mixture:

2% silver nitrate solution	3 c.c.
Warm 10% aqueous gelatine solution	5 c.c.
Warm glycerol	5 c.c.
Warm 1½% agar suspension	5 c.c.
5% aqueous hydroquinone solution	2 c.c.

7. After the solution is reduced remove and rise in 5% sodium thiosulphate solution.
8. Rinse in distilled water.
9. Absolute alcohol, xylol, balsam.

The authors believe that their method is the surest and safest diagnostic method yet devised for this particular purpose.—A. S. Warthin and A. C. Starry, *Jour. Inf. Dis.*, 30, 592 (1922).

✣

Sources of Error in the Epstein Method for Blood Sugar Determination.—The Epstein method for blood sugar determination when checked against standard glucose solutions and blood, gives results which are always too high and the percent of error is not constant. This source of error is due first, to the use of too great a concentration of alkali; second, too much heat; third, concentration of the protein free filtrate to too small a volume both before and after the addition of alkali. The modification described by the author brings the accuracy of the Epstein method reasonably up to that of the Lewis and Benedict procedure.—C. M. Wilhelmj, *Jour. Lab. Clin. Med.*, 7, 489 (1922).

✣

Blood Sugar Content of Capillary and Venous Blood.—In 20 individuals the capillary blood sugar was found to closely parallel the venous blood sugar. For clinical purposes the values may be considered identical.—I. Neuwirth and I. S. Kleiner, Jour. Lab. Clin. Med., 7, 495 (1922).

✣

Entameba Histolytica in the Testis and Epididymis in Chronic Dysentery.—The amebas found corresponded in every way to those previously found in the stools of the patient when first seen. This particular case presents the unique occurrence of the metastasis of Entameba histolytica to the epididymis and testis with definite, though slight local lesions in these organs, in a patient affected for many years with amebic dysentery, at the time of death nearly completely healed, with disappearance of amebas from the stools. It is the first recorded instance of such localization.—A. S. Warthin, *Jour. Inf. Dis.*, 30, 559 (1922).

✣

Bacteria in Gastric Fractions.—The organisms most frequently found in the stomach of normal and psychotic persons were members of the staphylococcus, streptococcus, lactobacillus and yeast groups. During an analysis approximately the same types and numbers of bacteria were found in the stomach irrespective of high and low acidity fluctuations. This indicates that the gastric acidity is not the most important factor limiting the bacterial content of the stomach during a fractional analysis.—N. Kopeloff, *Jour. Inf. Dis.*, 30, 613 (1922).

✣

Precipitin Reaction in Gonorrheal Discharges.—Although reactions are obtained when extracts of discharges from gonorrheal patients are added to the serum of a rabbit immunized with gonococci, similar reactions are frequently encountered with the serums of normal rabbits. Likewise, extracts of material from the genital organs known not to be infected with the gonococcus, as well as extracts of exudates due to infections by other organisms, give reactions with both antigonococcus serum and normal serum. Attempts to exclude the non-specific factor and thus obtain a specific reaction have failed. The precipitin reaction as recommended by Robinson and Meader (*Jour. Urol.*, Vol. 4, p. 551), is not applicable for the determination of the presence of the gonococcus in discharges from the cervix, urethra, etc.—M. F. Kelley, *Jour. Inf. Dis.*, 30, 623 (1922).

✣

Changes in Reaction in Lange's Test.—The agglutination of colloidal gold particles by spinal fluid is accompanied by an increase in the alkalinity of the medium in which this reaction occurs. This change in reaction is similar to that observed in the agglutination of bacteria by homologous immune serum.—E. F. Hirsch, *Jour. Inf. Dis.*, 30, 658 (1922).

An Easy Method of Finding Tubercle Bacilli in Sputum.—Prof. N. Pane of the Bacteriological Institute at the University of Naples has just published a new method in which a concentration of existing bacilli is obtained without any diminution in their number. The suspected sputum is placed in a sterile glass receptacle, and four times its volume of physiological salt solution added; this is then incubated at 37° C. for 24 hours. During this time the mucus and cells are liquefied by the proteolytic enzymes in the sputum. The centrifugalization of the bacteria is by this means rendered easy by the elimination from the liquid of the organic substances which spoil the clearness of the preparation and the tubercle bacilli are readily shown by the Ziehl-Neelsen method.—*Lancet,* May 27, 1922, 1056, (*D. G.*)

✣

Laboratory Tabulator for Making Differential Blood Count.—The importance of the differential count of blood corpuscles is universally admitted, not only as a means of making a reliable diagnosis, but also as a useful gauge for the prognosis and probable outcome of a disease. In making examinations, the eye becomes focused upon the field presented by the microscope, and in order to record each individual finding it is necessary to remove the eye from the microscope. Thus the eye is constantly adjusting and readjusting itself, which causes a continuous tension of the muscles of the eye. This method constitutes a loss of time, and when a considerable number of examinations are being made, there is the possibility of unreliable recording.

Dr. C. Penaflor of Manila, Philippine Islands, is presenting a machine, a sort of tabulator, whereby rapid and reliable results are obtained, and for which operation less training is required than to operate an ordinary typewriting machine. A differential count is accomplished with one hand, leaving the other free for focusing or changing the relative position of the plate and microscope. All that it is necessary to remember is the relative position of the keys corresponding to the different kinds of white blood corpuscle. The required key is depressed in succession as many times as the corresponding corpuscle appears in the field under observation in the microscope. Numbers are registered and additions made, so that at any time the totals for each variety appear in their respective positions.

The inventor claims for the apparatus the following advantages: 1. It facilitates differential blood counting. 2. It insures accurate and exact results. 3. It gives off-hand the percentages of the white corpuscles after one counting, without any further figuring. 4. It avoids fatigue and weakening of the eye, and other visual disturbances consequent upon those conditions. 5. It can be used for making differential counts of pathological erythrocytes, and, in fact, for any other examination that involves percentage finding, by simply substituting the name of leucocytes with appropriate labels.—*Modern Hospital,* June, 1922, p. 551.



How the New Tabulator Is Used

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CONVENTIONS, CONFERENCES AND MEETINGS

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FEDERAL AID FOR THE PROTECTION OF MATERNITY AND INFANCY

GRACE ABBOTT

Chief, Children's Bureau, Washington, D. C.

THE reasons which led the Children's Bureau to advocate federal aid for the promotion of better maternal and infant care by the states are perhaps known to the readers of the JOURNAL. The historical setting is so important that at the risk of repetition, it is summarized here.

The Children's Bureau was created by act of Congress in 1912. Heading a long list of subjects which it is directed by its organic act to investigate is that of infant mortality. Because it was considered of fundamental importance, this subject was the first one to be investigated by the Children's Bureau. The initial study made in an industrial town in 1913 was, at the special direction of Congress, repeated in nine other industrial towns and cities including Baltimore, Md., and Gary, Ind. Studies of the care available to mothers and infants in typical rural communities of twelve states of the South, Middle West, and West were also made.

The coincidence of a high infant mortality rate with low earnings, poor housing, the employment of the mother outside the home and large families was indicated in all these studies. They also showed that there is great variation in the infant mortality rates, not only in different parts of the United States, but in different parts of the same state and the same city or town. These differences were found to be caused by different population elements, widely varying social and economic conditions, difference in appreciation of good prenatal and infant care, and the facilities available for such care.

Evidence of the methods used in successful efforts to reduce infant mortality was also assembled. The instruction of mothers through infant-welfare centers, public-health nurses, and popular bulletins as to the proper care of children, the value of breast-feeding, the importance of consulting a doctor upon the first evidence of disease, everywhere brought substantial decreases in deaths, especially from causes classified in the gastrointestinal and respiratory groups. But little progress was made or has since been made in reducing the deaths in early infancy, including deaths caused by premature birth, congenital debility, and injuries at birth. Thus, in the year 1915 the number of infant deaths during the first month of life in the Registration Area of the United States was more than five times that of the tenth, eleventh and twelfth months, and in 1920 it was still five times as great. Similarly, in the year 1915 the number of infant deaths during the first

week of life was eight times that in the fourth week, and in 1920 it was nine times as great. Consideration of the causes of infant mortality inevitably leads, therefore, to the question of the care mothers are receiving before, during, and after childbirth.

An analysis of the available statistical information with reference to deaths among mothers was published by the Bureau in 1917 and was the subject of much discussion. In a few places the possibility of reducing this death-rate about one-half through prenatal supervision in connection with prenatal clinics or maternity centers had been demonstrated.

With the evidence that, as Dr. Howard has pointed out, "the prevention and control of illness and death of mother and child are among the most neglected and potentially the most fruitful domains of public-health administration," some means for extending on a national scale the successful local work for better care for mothers and infants was obviously necessary.

In her annual report for 1917, Miss Julia Lathrop, in reporting on the Bureau's investigation of infant and maternal mortality, called attention to the method of coöperation between national and local government adopted by Great Britain in the so-called grants-in-aid for maternity and infant-welfare work and suggested that the United States should use the well-established principle of federal aid as a basis of national and state coöperation in reducing the unneccessary high death-rate among mothers and babies in this country. The best-known previously enacted laws of this general type were: the Morrill Act of 1862 providing for land-grant colleges; the Hatch Act of 1887 establishing agricultural experiment stations; the Smith-Lever Act of 1914 creating the agricultural extension service; the Good Roads Act of 1916 (extended in 1919, 1921, and 1922); and the Vocational Education Act of 1917.* For an almost innumerable number of objects Congress had granted to the states temporary subsidies from time to time. In view, then, of the overwhelming evidence of the need of promoting on a national scale the health of mothers and babies and the successful demonstration by a number of both public and private agencies in different parts of the country of what could be done through maternity and well-baby centers, it was but logical to resort to the method of state and federal coöperation which had been so frequently used for less important ends.

The Sheppard-Towner Act for the Promotion of the Welfare and Hygiene of Maternity and Infancy, which became a law November 23, 1921, is in all essentials the same as the plan for the "public protection of maternity and infancy" submitted by Miss Lathrop in her annual report for 1917. Briefly summarized, its most important provisions are as follows: (1) *Appropriation.* It authorizes an appropriation of $1,240,000 for a five-year period, of which not to exceed $50,000 may be expended by the Children's Bureau for administrative purposes and for the investigation of maternal and infant mortality; the balance to be divided among the states accepting the Act as follows: $5,000 unmatched to each state, and an additional $5,000 to each state if matched; the balance to be allotted among the several states on the basis of population, and granted if matched. (2) *Administration.* National administration of the Act is lodged with the Children's Bureau of the Department of Labor; local administration in the states is in the Child Hygiene or Child Welfare Division of the state agency of health, or where such a division does not exist, the agency designated by the state. (3) *Plan of Work.* The Act intends that the plan of work shall originate in the state and be carried out by the state. A Federal Board of Maternity and Infant Hygiene, composed of the chief of the

*The Industrial Rehabilitation Act has since been passed (1920).

Children's Bureau, the Surgeon General of the United States Public Health Service, and the United States Commissioner of Education, may approve or disapprove state plans, but the Act provides that the plans must be approved by the Federal Board if "reasonably appropriate and adequate to carry out its purposes."

As originally introduced, the Act provided that the funds were to be expended by the states for "provision of instruction in the hygiene of maternity and infancy through public-health nursing, consultation centers, and other suitable methods; and the provision of medical and nursing care for mothers and infants at home or at a hospital when necessary, especially in remote areas." These specific provisions do not appear in the Act as passed, and the only prohibitions are that no part of the funds is to be expended for the purchase, erection, or repair of any building or equipment, or for the purchase or rental of any buildings or lands, or for any maternity or infancy stipend, gratuity or pension. While the Act was passed November 23, 1921, the money was not made available until the following April. The second Deficiency Act, passed March 20, 1922, carried an appropriation of $490,000.00 for the balance of the fiscal year ending June 30, 1922, and the Appropriation Act for the Departments of Commerce and Labor for the fiscal year ending June 30, 1923, provides $1,240,000 for the purposes of the Maternity and Infant Hygiene Act. Some preliminary decisions and approval forms by the comptroller of the Treasury were necessary so that the first money was not paid to the states until May of 1922.

Up to date 42 states have accepted the terms of the Act—all except, Maine Massachusetts, Rhode Island, New York, Louisiana, and Washington. Eleven of these acceptances (New Hampshire, Delaware, New Jersey, Maryland, Virginia, South Carolina, Kentucky, Mississippi, Minnesota, Oregon and New Mexico) are by state legislatures and the remaining 31 by governors pending the next regular session of the legislature.

The amounts available to the states for the fiscal year ending June 30, 1922, and June 30, 1923, are as follows:

MAXIMUM AMOUNTS AVAILABLE TO THE STATES FOR THE FISCAL YEAR ENDING JUNE 30, 1922

State	Granted if matched Apportioned on Basis of Population	Total Including $240,000 Granted Outright ($5.000 to each State)
Total	$237,500.00	$477,500.00
Alabama	$ 5,297.56	$ 10,297.56
Arizona	753.88	5,753.88
Arkansas	3,953.03	8,953.03
California	7,731.12	12,731.12
Colorado	2,119.83	7,119.83
Connecticut	3,114.75	8,114.75
Delaware	503.10	5,503.10
Florida	2,184.90	7,184.90
Georgia	6,533.10	11,533.10
Idaho	974.30	5,974.30
Illinois	14,631.03	19,631.03
Indiana	6,611.07	11,611.07
Iowa	5,423.56	10,423.56
Kansas	3,991.51	8,991.51
Kentucky	5,452.00	10,452.00
Louisiana	4,057.50	9,057.50
Maine	1,732.66	6,732.66
Maryland	3,270.49	8,270.49
Massachusetts	8,691.06	13,691.06
Michigan	8,276.07	13,276.07
Minnesota	5,385.44	10,385.44
Mississippi	4,039.70	9,039.70
Missouri	7,679.67	12,679.67
Montana	1,238.31	6,238.31
Nebraska	2,924.66	7,924.66
Nevada	174.63	5,174.63
New Hampshire	999.61	5,999.61
New Jersey	7,119.83	12,119.83
New Mexico	812.96	5,812.96
New York	23,429.70	28,429.70
North Carolina	5,773.47	10,773.47
North Dakota	1,459.36	6,459.36
Ohio	12,993.41	17,993.41
Oklahoma	4,575.88	9,575.88
Oregon	1,767.35	6,767.35
Pennsylvania	19,672.69	24,672.69
Rhode Island	1,363.54	6,363.54
South Carolina	3,798.54	8,798.54
South Daokta	1,436.07	6,436.07
Tennessee	5,274.35	10,274.35
Texas	10,520.41	15,520.41
Utah	1,013.85	6,013.85
Vermont	795.09	5,795.09
Virginia	5,209.61	10,209.61
Washington	3,060.58	8,060.58
West Virginia	3,302.16	8,302.16
Wisconsin	5,938.04	10,938.04
Wyoming	438.57	5,438.57

MAXIMUM AMOUNT AVAILABLE TO THE STATES FOR THE FISCAL YEAR ENDING JUNE 30, 1923

State	Apportioned on basis of population	Granted if matched. Total (if matched)*	Grand Total†
Total	$710,000.00	$950,000.00	$1,190,000.00
Alabama	15,836.95	20,836.95	25,836.95
Arizona	2,253.71	7,253.71	12,253.71
Arkansas	11,817.51	16,817.51	21,817.51
California	23,112.01	28,112.01	33,112.01
Colorado	6,337.20	11,337.20	16,337.20
Connecticut	9,311.48	14,311.48	19,311.48
Delaware	1,504.01	6,504.01	11,504.01
Florida	6,531.72	11,531.72	16,531.72
Georgia	19,530.55	24,530.55	29,530.55
Idaho	2,912.66	7,912.66	12,912.66
Illinois	43,739.10	48,739.10	53,739.10
Indiana	19,763.62	24,763.62	29,763.62
Iowa	16,213.60	21,213.60	26,213.60
Kansas	11,932.52	16,932.52	21,932.52
Kentucky	16,298.64	21,298.64	26,298.64
Louisiana	12,129.80	17,129.80	22,129.80
Maine	5,179.77	10,179.77	15,179.77
Maryland	9,777.05	14,777.05	19,777.05
Massachusetts	25,981.70	30,981.70	35,981.70
Michigan	24,741.11	29,741.11	34,741.11
Minnesota	16,099.65	21,099.65	26,099.65
Mississippi	12,076.58	17,076.58	22,076.58
Missouri	22,958.19	27,958.19	32,958.19
Montana	3,701.91	8,701.91	13,701.91
Nebraska	8,743.21	13,743.21	18,743.21
Nevada	522.06	5,522.06	10,522.06
New Hampshire	2,988.31	7,988.31	12,988.31
New Jersey	21,284.55	26,284.55	31,284.55
New Mexico	2,430.33	7,430.33	12,430.33
New York	70,041.78	75,041.78	80,041.78
North Carolina	17,259.66	22,259.66	27,259.66
North Dakota	4,362.74	9,362.74	14,362.74
Ohio	38,843.46	43,843.46	48,843.46
Oklahoma	13,679.48	18,679.48	23,679.48
Oregon	5,283.46	10,283.46	15,283.46
Pennsylvania	58,810.99	63,810.99	68,810.99
Rhode Island	4,076.28	9,076.28	14,076.28
South Carolina	11,355.65	16,355.65	21,355.65
South Dakota	4,293.11	9,293.11	14,293.11
Tennessee	15,767.55	20,767.55	25,767.55
Texas	31,450.52	36,450.52	41,450.52
Utah	3,030.89	8,030.89	13,030.89
Vermont	2,376.90	7,376.90	12,376.90
Virginia	15,574.00	20,574.00	25,574.00
Washington	9,149.55	14,149.55	19,149.55
West Virginia	9,871.74	14,871.74	19,871.74
Wisconsin	17,751.62	22,751.62	27,751.62
Wyoming	1,311.12	6,311.12	11,311.12

*Includes $240,000 granted if matched ($5,000 to each state).

†Includes $240,000 granted outright ($5,000 to each state) in addition to amounts granted if matched.

Payments have been made to 38 states from 1922 funds, and to 27 states from 1923 funds. Of the 38 states that have received payments from 1922 funds, 22 matched their full allotment, 4 matched part of their allotment, and 12 accepted the $5,000 granted outright without matching. Of the 27 states that have received payments from 1923 funds, 12 matched their full allotment, 6 matched part of their allotment, and 9 accepted the $5,000 granted outright without matching.

The Federal Board of Maternity and Infant Hygiene met on April 18, 1922, elected the chief of the Children's Bureau chairman of the Board, and proceeded to consider the plans submitted by states accepting the Act. The Board has laid down no plan of work which a state must follow nor has it made approval of plans contingent on complying with certain conditions, each plan being considered on its merits.

The plans submitted by the states and approved by the Board vary greatly. The best planning for a state requires a correlation of the money available with the number and causes of deaths among mothers and babies in the different parts of the state and the available local facilities. Unfortunately, 18 of the states accepting the Act have not as yet sufficiently complete registration of births to be counted in the Birth Registration Area and 12 are not in the Death Registration Area. Obviously their plans cannot have the fact basis which is so desirable. Practically all these states are making the Sheppard-Towner Act the basis for a new effort to secure a new law or the enforcement of the one already enacted.

In some states the infant-welfare program is well started and the federal money can be used in the development of plans already tested by local experience, but in a far fewer number is the program for maternity care anything like so well developed; hence preliminary educational work in this field is generally necessary. Examples of plans on which the states are starting their work will make the value of the law clear.

One state, whose budget for 15 months with the federal funds amounts to $62,269.02, has selected two counties as training and demonstration centers in maternity and infant care, where special attention will be given to the development and standardization of plans of work. These training bases offer the following variety of problems: (1) Strictly city problems. (2) Small town

problems. (3) Problems connected with mining camps and industrial communities. (4) Rural problems associated with agricultural pursuits and involving isolation, poverty, and ignorance to a marked degree. In this state, inauguration of a maternity and infancy program in connection with the already established county health units will be possible in at least five additional counties. Efforts will be made to secure the adoption of a maternity and infancy program in the remaining 15 counties having organized county health units. In counties having no full-time health service, a general study of the racial elements of the population and the possibilities of local coöperation will be made, and campaigns to secure registration of all births, use of "drops" in the eyes of new-born babies, and reporting of cases of ophthalmia neonatorum will be made.

A program for another state, involving expenditure of approximately $176,967.36 for 15 months, provides for two field physicians, six supervising nurses, four full-time nurses and 80 nurses who will give half time to the maternity and infancy work. In this state special attention is to be given to the training and supervising of midwives. The number of prenatal centers in the state is to be greatly increased, as is the number of well-baby clinics.

Another state, which will have available $61,567.22 for a 15 months' program, has a fairly well-developed county organization for public-health work, and there is general local appreciation of the value of work for mothers and babies. In this state nurses are to be placed in counties already organized, who will devote themselves to maternity and infancy. Supervision of midwives, the number of whom is estimated at some 6,000, inspection of maternity hospitals, as well as conducting prenatal and child-hygiene centers, are included in the plans.

In another state which will have only the unmatched federal funds, $10,000, general educational work will be done from the central office, and two demonstrations, one in a town and one in a rural district, of the work of an infant welfare and prenatal center will be made.

One of the smaller Eastern states, with a well-developed child-hygiene program and a budget of $76,808.76, proposes to reduce the maternal mortality by (1) instruction of mothers through prenatal clinics, (2) investigation of all puerperal deaths attended by midwives, (3) supervision of midwives, and (4) coöperation with hospitals. The infant mortality rate will be reached through prenatal care offered the mothers and the instruction of mothers in infant care. This state will have a staff of 44 nurses, enough to make possible a visit to all new-born babies, and the follow-up work for the "Baby-Keep-Well Stations" which are being developed, and the licensing and supervision of boarding homes. Two social workers will give special attention to the problem of preventing unnecessary separation of mothers and babies.

In contrast, a large Western state which has only the unmatched federal funds, plans general educational work as to the needs and possibilities of an infant and maternal hygiene program, will make its first survey of the state's problems—geographic distribution of maternal and infant deaths, causes, available local facilities, etc.—and will employ the school nurses of the state during the summer months for infant welfare work.

A state in the Middle West plans regular monthly conferences at a series of maternity centers that will be opened throughout the state; a Child Welfare Special will visit six communities, holding children's health conferences at stated intervals; institutes will be held to instruct women who will act as "mother's helpers" in the care of the home and other children during and after the mother's confinement; and Little Mother's Classes will be organized in the schools.

Any public-health work is, shall we say, at least three-fourths educational. The widespread discussion of the Sheppard-Towner Act has already done much to acquaint women and legislators with the importance of scientific care for themselves and their babies. Thus New York, Massachusetts, and Maine, although not accepting federal assistance, have made their first appropriations for the promotion of the hygiene of maternity, as a result of discussion of the Sheppard-Towner Act. Whether considered separately or in relation to other states or nations, every state must face the fact that there is a general demand that whatever the source or character of the opposition, the large and preventable loss of life among mothers and babies must be reduced. But the value of the work is not limited to the saving of life.

All the examinations of cross-sections of the population made in connection with pre-school clinics, school medical inspection, medical certification of children for work permits, examinations of all the men in connection with the draft, show substantially the same high percentage of physical subnormality. Care of the mother and the child from birth are the foundation on which a national program must be built. Subsequent work is remedial, not preventive.

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REPORT OF THE COMMITTEE ON MEDICAL SERVICE OF THE STATE AND PROVINCIAL HEALTH AUTHORITIES OF NORTH AMERICA

Read before the Annual Conference of State and Provincial Health Authorities, Washington, D. C., May 15-16, 1922.

SINCE the last report of your Committee, developments have taken place in the field of medical practice and medical education, some of which make for distinct progress and others for retrogression. In the latter class quackery continues to extend its field of activity, sanctioned by official approval. In some states quacks are not restricted to the practice of a particular cult, but have been boldly licensed to practice general medicine. On the other hand, a number of highly important judicial decisions have been handed down, broadly defining the practice of medicine and upholding the right of boards of licensure to set minimum standards of professional education for all those who desire to practice on the human body. Here and there persons have been convicted of practicing medicine without a license, but their number is so small compared with the great number of malefactors who should be so convicted as to constitute little or no deterrent against the innumerable breaches of the Medical Practice Act.

Your Committee has previously expressed to this body the belief that the various cults are patronized largely for the reason that the laity, demanding some kind of medical care and treatment, and, being unable to discriminate, will continue to consult unqualified persons until such time as they are supplied with those who are qualified by training and experience to furnish advice of real value. In other words, who will practice the art of medicine. The many factors which have contributed to the gradual disappearance of the general practitioner have been thoroughly discussed and are now fairly well agreed upon. Your Committee will, therefore, confine its report to but one such factor, namely, modern medical education.

The question as to whether methods of medical education are meeting the de-

mands of modern practice must always be a matter of deep concern to health officials who are interested only indirectly in medicine as a career, but very directly in the contribution which the recent medical graduate is able and willing to make to the cause of public health, which is synonymous with that of preventive medicine. At the last annual Congress on Medical Education, Licensure, Public Health, and Hospitals, held at Chicago, a very broad discussion by those present served to bring out the practically unanimous opinion that there is something radically wrong with the present-day methods of medical education, in which opinion we who have ample opportunity to appraise the finished product of the medical school are heartily in accord. The modern graduate in medicine is taught a little of everything known, suspected, or hoped for by medical educators, except only how to think. For this he is given little or no time or any encouragement, with the result that in many instances he leaves the medical school with a brain filled with uncorrelated facts whose relationship he may never have time or opportunity to discover, or only after long experience, largely at the expense of those upon whom he practices. He is too often a mere compendium of medical terms rather than a man of well-rounded character and knowledge standing squarely on his feet and willing at all times to make the mental effort necessary to solve a difficult medical problem and not cast the burden of solution upon one or more specialists. Many graduates, in despair of mastering general medical knowledge, the complexity of which has been exaggerated by a state of mental indigestion, sooner or later, with little or no preparation, join the ever-increasing hosts of specialists. As a basic remedy for what may be called asymmetrical medical education, Dr. Ray Lyman Wilbur, of California, at the Chicago conference suggested that the central corps of medical training must include anatomy, physiology, chemistry, bacteriology, pathology, pharmacology, clinical and laboratory medicine, including pediatrics and mental diseases, clinical and laboratory surgery, obstetrics and gynecology, hygiene and public health. He believes that there is no need to include any of the so-called specialties, except in an elementary way, if the foregoing subjects are adequately taught, and that the professors of medicine and surgery can readily bring the main essential facts of every specialty into their routine teaching. The student can be left time enough for optional work in his four years, so that he can enter any chosen special field for additional technical training. The specialties taught as they are at present belong outside the undergraduate medical curriculum. They can be included in the medical curriculum when they are taught by men who can range over the body instead of having their vision limited largely to body orifices. Such men can come in and form part of the teaching staff of any one of the three great divisions of clinical medicine. Your Committee believes that the opinions expressed by Dr. Wilbur, from which the foregoing is an extract, are well worthy of consideration by this body. He seems to have placed his finger squarely on one of the fundamental sore spots in medical education, namely, the undue emphasis given to instruction by pure specialists without any instruction as to the relationship which the pathologic conditions included in a specialty bear to abnormal conditions in the body as a whole.

The importance of training in preventive medicine is being generally recognized, and ways and means of accomplishing it have received an immense impetus during the past year. It is self-evident that official health work can not proceed beyond a certain limit unless the general practitioner has been taught to think and act in terms of preventive

medicine, and thus do his part in the prevention and control of disease. The time is fast approaching when the intelligent citizen will demand instruction by his physician as to how he may keep well, and not simply treatment for actual illness. This is a field which has been woefully neglected by most of our medical schools, while the older graduates have not yet awakened to its importance, not only to their patients and communities but to themselves professionally. Preventive medicine is at present left largely in the hands of health officials, insurance companies, and industrial organizations, while the practicing physician is excluded from the field even of personal hygiene, because he has not been taught to think in terms of prevention rather than diagnosis and cure.

This fact has been well stated by Dr. Goldwater of New York in a recent communication to the *Journal of the American Medical Association,* in which he states: "The space allotted to hygiene in the various aspects of health conservation in the present medical curriculum is almost negligible. Passing lightly over these subjects, the student is conducted all too quickly to the clinic and the post-mortem room, and when finally in the hope of rounding out his practical training he enters the hospital as an interne, his mind is firmly set toward the more dramatic phases of disease and injury. In the hospital fully half the time and attention of the interne is claimed by major surgery, a useful, indispensable and life-saving art, but one which if carefully appraised will probably be found to embrace from one thirtieth to one fiftieth of the potential usefulness of medical science broadly conceived and strategically organized and applied." Dr. Goldwater pleads for increased emphasis on hygiene in the present curriculum and for a fundamental reconstruction of the whole scheme of medical education with a view to the presentation in logical order of (1) the sciences underlying medicine; (2) anatomy and physiology; (3) the science and art of health conservation; and (4) the diagnosis and treatment of disease. The multiplication and expansion of schools of public health, however useful or desirable, will not meet the requirement.

At the recent conference called by the Surgeon General of the Public Health Service in this city to discuss the future of public health in the United States, somewhat divergent views were held by those present as to the best means of training the future sanitarian, and very decided differences of opinion were expressed as to what knowledge the sanitarian would be required to possess.

While believing that future administrative health officials will be required by public opinion to possess a greater amount of technical knowledge of matters directly and indirectly bearing on public health, your Committee is obliged to take issue with those who visualize the supersanitarian of the future, he who shall be not only an efficient administrative officer but technically trained in every subject which bears on public-health work. There can be no question that the competent administrator should possess a general and sympathetic knowledge of vital statistics, public-health education, epidemiology, medical diagnosis—especially of infectious diseases,—serology, pediatrics, obstetrics, bacteriology, and even sociology and economics, but that he should be required to become actually proficient in all of these subjects before being qualified to take office is very much to be doubted. No one man can be expected to compass the entire field, but an administrator should have sufficient knowledge of all these subjects in order to supervise and direct the work of the divisions, bureaus, or individuals having directly to do with each of them.

It is the opinion of your Committee that the present number of schools of public health, together with the general medical schools whose curricula so

reorganized and correlated as to emphasize the teaching of preventive medicine and hygiene, will for some time to come supply all the material which can be absorbed and adequately compensated by states, counties, local communities and industrial organizations, and that the greatest of all public-health schools—the school of experience — with its flexible curriculum, will to the end receive the graduates of all other institutions and continue to separate the chaff from the wheat. The faculty of this great school consists of the general public. Its motto is "Get results." Entrants in order to be accepted must possess integrity and strength of character, be capable of applying previously acquired theory to actual conditions with the least amount of friction; possess and display medical statesmanship and tact, knowledge of human nature, sympathy with ignorance, human frailty, and suffering; and above all be firmly grounded in common sense. Upon such soil alone will the seeds of technical public-health training be worth the planting.

MATTHIAS NICOLL, JR., M. D., *Chairman.*
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The Human Origin of Communicable Disease.—An outbreak of typhoid fever in a well-conducted orphanage of 54 children illustrates the persistence of old-fashioned ideas regarding the unhealthfulness of places. A. B., an intelligent, prosperous farmer living in the outskirts of a small city in New Jersey, sold his farm in December, 1921, and moved into New York state because his old farm was in a valley on a small stream where the land was low and the drainage bad, and he had come to believe the location unhealthful. A. B. said that he had had typhoid fever in the fall of 1919 and that his two daughters came down with it during 1920, and his son developed it in the fall of 1921. All had been treated in a hospital in the city near his home and before discharge each had been pronounced free from typhoid bacilli after examination of their excretions. Yet the man was allowed to think that the soil was the cause of the sickness in his family, and apparently the possibility that he himself might be the cause of the sickness of his children was never suggested to him.

The farm which Mr. B. bought produced a portion of the milk for the orphanage. He began to handle the milk on December 26, 1921. An attendant at the orphanage and two child inmates developed typhoid between January 19 and 30, 1922. All had drunk the milk from A. B.'s farm and no other source of infection could be found. Mr. B. and his family readily consented to an examination of their excretions, and Mr. B. was found to be a carrier of typhoid bacilli. When the cases appeared the milk from this dairy was discontinued, and he at once sold his cows and said he would not engage in the milk business again, but that he would take up general farming.

Here was a man who not only infected six persons with typhoid fever, but also put himself and his family to the great inconvenience and expense of moving to a new locality because he had not been taught the simple facts that unhealthfulness of the air, or soil, or water is practically always due to direct human pollution, and that with few exceptions every case of human communicable disease has a direct ancestry of previous human cases.—*Health News,* Albany, N. Y., March, 1922.



THE NATIONAL RESEARCH COUNCIL

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Chairman Division of Medical Sciences

Read before the Conference of State and Provincial Health Authorities, Washington, D. C., May 15-16, 1922.

IN order that you may understand what the National Research Council is, it is necessary to go back some years. In 1863, during the Civil War, the government of the United States became conscious for the first time, I think, any government ever did become conscious, of the fact that war could not be carried on without scientific advice and scientific knowledge. So, in 1863, the Congress of the United States chartered the National Academy of Sciences—the only scientific body chartered by Congress in this country.

The National Academy of Sciences corresponds to the Royal Society of England and to the French Académie des Sciences. In the charter of the National Academy of Sciences it was stated that one of the chief functions would be to advise the President and Congress on scientific matters. From time to time since 1863 the government, either through its legislative branch or its executive head, has called upon the National Academy of Sciences for advice. This was done when the decision was made between Panama and the Nicaraguan route for the canal; and it has been done several times in addition.

In March, 1916, President Wilson asked the National Academy of Sciences to appoint a committee to advise him on scientific matters which might arise in case of an emergency. The National Academy of Sciences appointed a committee, which assembled in New York on the 20th of September, 1916, for the purpose of advising the President in case of an emergency. It was necessary to get the information and advice of that committee, and in all my life I have never had so interesting a time.

It was found early in the fall of 1916 that there was not enough digitalis in this country to run a small hospital for six months. We knew that digitalis grows wild in Oregon and Washington, but it is a different species from that from which the drug we had used up to that time had been made. It was *Digitalis flava*, while the digitalis which had been used in the preparation of the drug was *Digitalis purpurea*. So in the fall of 1916 boy scouts were enlisted, and they gathered tons of digitalis in Washington and Oregon. It was also learned that the University of Minnesota had a small botanical garden of medicinal plants, and they were asked to put in acres of digitalis in the spring of 1917, which the University did. By the time war began we had enough digitalis to supply the world, and the digitalis which was raised at the University of Minnesota and was made into the drug was *Digitalis flava*, instead of *purpurea*. And it was better digitalis than that which the Germans had been supplying us.

There was not a surgical needle made in the United States at that time. The committee appointed by the National Academy of Sciences got together men who had made needles of any kind and all kinds. A man representing one of the sewing-machine companies said, "I never saw a needle of that kind, but if you will get me a sample we will make them." By the time the war began that company was turning out needles by the bushel.

I mention these things to show you that, so far as the scientific men of the country were concerned, we did not enter the war unprepared, or at least we were partially prepared. I should say in this connection that the American Medical Association, the American College of Surgeons, and some other organizations had got together in the spring of 1916 and by December of that year the Surgeon General of the Army had on his desk the name of every man of military age in the medical profession of this country and what, in the opinion of state committees, was his special line of work, that is, what he was good for. In this way the medical profession of the United

States set an example and furnished a larger proportion of its members to the service, without hesitancy, than any other profession in the country.

This committee appointed by the National Academy of Sciences in 1916 functioned during the war as the National Research Council, trying to help the government in all of its departments with its advice. To mention one of these things: We were told that we must have ear-protectors. In the fall of 1916 Gordon Wilson, of Chicago, made an effective protector. There were many others who were interested in making ear-protectors; but when we really got into war and the French and English officers came over and found that we were putting out an improved ear-protector they said, "The protectors now in use are no good; they are all right to show, but they are no good because the man on the battlefield needs his keenest hearing. The bombs are loaded with different gases and give out different sounds, if one carries poisonous gas it has a certain sound; if it carries some other material it had another sound. Some of them explode on a time fuse and others on a contact fuse; and it is necessary for a man to have his very best hearing."

During the war the National Research Council was supported by the government. It was not concerned with medicine only. There are fourteen sections of the National Research Council, giving advice along various lines. And I happen to recall now that the best topographic map made of northern France, and which, after it was made and sent over there, was used by French, English and American soldiers, was made under the auspices of the National Research Council.

After the war it was a question—a very serious question—whether the National Research Council should continue in existence or not. The public expediency for which it had been created was accomplished. So the question arose, should it continue or should it not? Finally those who believed in its continued existence went to the Carnegie Corporation and secured an endowment of $5,000,000, $1,000,000 for a building and $4,000,000 for an endowment. The ground, immediately north of the Lincoln Memorial, has been purchased. You will see, driving down that way, a sign; that is the property of the National Academy of Sciences. A marble building is to be placed there; the contract has been let and it is expected that the building will be ready for occupancy in about eighteen months from now.

My purpose this afternoon is to tell you about the medical division of the National Research Council. We are living now, of course, on the interest of the money,—the $5,000,000 given by the Carnegie people,—and that will be cut down to $4,000,000 as soon as the building is paid for. That simply keeps up the organization. Some one comes here each year to take charge of the medical division; I came here last September and will continue until next September in charge of that division. At that time Professor Frederick P. Gay, of California, will take charge of it.

I can best illustrate what the division is by telling you something of the work that we have under way in the medical division. In the first place, when plans or regulations were formulated in the Surgeon General's Office for the examination of drafted men, it was not thought necessary to say anything about goiter. We did not think there was enough goiter in this country to play any part in the examination of the men about to enter the army. In the examinations resulting from the first draft it was found that 1 per cent of the young men between 21 and 31 years of age were so badly afflicted with goiter that they could not wear a uniform. That was a startling condition. So in the next draft special regulations were formulated with regard to goiter and it was found that about the same percentage of young men had goiter so acutely that they could not wear the uniform. We found that these men came from certain districts. Maryland, for instance, is a non-goiterous state; but there are three counties in Maryland in which 33 per cent of the men examined for the draft were excluded on account of goiter. Michigan

is a goiterous state. Washington is a goiterous state. It was decided by my division that we would get all the data on the location of goiter in this country. General Ireland was kind enough to detail Colonel Love; and we have now available in the Research Council data on the percentage of goiter, simple and exophthalmic, in every draft district in the United States.

Professor Hall has, for the past twelve years, examined all the students entering the University of Washington, with reference, among other things, to goiter. So that I now have two maps of the state of Washington, one giving the percentage of goiter in men between the ages of 21 and 31 in every county in the state; and another, a map made by Professor Hall, showing the percentage of goiter by counties in Washington among the students, both men and women, at an average age of about 19 years coming to the University of Washington. There are certain plateaus in the state of Washington where there is no goiter either on the map showing the drafted men or the map covering the students going to the University; while there are certain gorges and valleys where 45 per cent of the people are goiterous.

We have gone that far with that problem, and we intend to get a man in charge of several goiterous districts interested in the matter to study goiter, not only among men but among animals, and to send into those districts animals from non-goiterous regions and find out how long it takes them to become goiterous.

A second thing we have on hand: I have been nagging the National Tuberculosis Association for some years to get some definite statistics concerning the influence of climate, if it has any influence, upon tuberculosis in this country. The Research Council has attacked this problem, and we now have men under the direction of Dr. Henry Sewell, of Denver, and Raymond Pearl, of Baltimore, carefully studying the death certificates of Colorado for the past 15 years. When we get through we will know how many people who were born in Colorado have died from tuberculosis in Colorado. The people of Colorado say they do not have tuberculosis. If they are immune to tuberculosis, with so many tubercular people going there, it is a good thing to know it. We won't solve the whole problem of the relationship of climate to tuberculosis, but it will be a contribution toward it.

Then a man came in one day and said, "I want to know about the sex reflexes; I want to know the fundamental facts about sex, not only in man but in the lower animals and even in plants. We say that continence is perfectly compatible with the health of young men. I want to know. I will furnish the money to do the work." He was insistent and wanted to know how long it would take. I said, "You will be dead before it is finished." We have $25,000 for carrying out studies on sex problems in the lower animals, principally in microscopic animals at first. Then we will come up through the whole range of animals. At the same time we will carry on certain studies of sex behavior among men and women. And the man who is furnishing the money promises that if the results justify it he will continue this indefinitely, increasing the amount of money to be used for it.

Since the war we have had no reliable stains for bacteriological and histological purposes, and it has been a question whether we should allow the importation of stains free of duty or not. We have an arrangement with the Bureau of Chemistry, Department of Agriculture, whereby any manufacturer of stains can submit his stains for examination and they will be standardized. It is not a question of the purity of a stain; it is one as to whether a man using the same product systematically shall continue to have the same stain and get the same results.

The greatest thing that has come to the division of medicine during this year is a grant by the Rockefeller Foundation and the General Education Board of $100,000 a year for the endowment of scholarships in medicine. That is, if a young man graduating in medicine gives promise of making an unusually good teacher or a good investigator, the National Re-

search Council can now give him a stipend upon which he can live. The stipend is $1,800; but if a man has extra promise, we can put on a few hundred dollars, and if he has a family we can put on an additional few hundred dollars for them. This will give us about thirty scholarships this year and I think it will be a good thing for medicine.

Very recently the Council has endorsed a proposition for money for the study of heart disease. There are in New York City alone eighteen heart clinics and there are a good many in other cities. The purpose is to collect data so that we may know something about the prevalence, the origin, and the treatment of heart disease.

I have tried to give you briefly some idea of the National Research Council and some illustrations of the work it is doing through the division of medical science. It has no money itself, but it undertakes to go out and get money for purposes which the Council is convinced are proper and justified.

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Hospital Care at Sing Sing.—Hospital care of the sick in penal institutions is of the greatest importance when one realizes that frequently the reason men commit crime and are sent to prison is because of physical disability.

On the day of a prisoner's entrance to Sing Sing, he is given a bath, an entire outfit of prison clothing, and is then sent to the hospital, where his history is taken. This begins with a complete record of his parents and whether there has been chronic disease or mental disorder in his immediate family. Then a personal record is made of the man's age, religion, education, occupations, and length of time in each place, whether he has a past criminal record, is addicted to the use of drugs, tobacco, or liquor, or has ever had venereal disease. Special attention is paid to the subject of convulsions in any form, because many criminal assaults occur just prior to or immediately after a convulsion, and as to whether the man has ever had a nervous breakdown or been injured or operated upon, or has symptoms of tuberculosis.

If he has had gonorrhea a smear test is made; invariably a Wassermann and urinalysis is made of every inmate regardless of past history. If any condition is found requiring surgical interference, upon the consent of the inmate he is operated upon. His vision is taken and those requiring glasses are treated in the eye clinic. Teeth are also given attention. Inmates receive treatment for syphilis, sometimes continuing for as long as three years. Psychological examination is made of all inmates to determine their intelligence level. Of 182 whites and 18 blacks examined the average mental age was found to be 13 years and 3 months for whites and 10 years for the negroes. There is an average population of 1,200, but about 1,500 new inmates are received each year. As soon as they are taken care of medically and surgically, they are transferred to other prisons of the state. The hospital has 75 beds, and an average of 60 occupants.

There has been a decided increase in the number of drug addicts among those admitted recently. These are treated by the withdrawal of the drug, a substitute being provided, and the most particular care taken that the patient is not supplied from outside. The same period of observation, rest and reconstructive treatment follows as in other methods.

New York State has completed a new psychiatric laboratory at Sing Sing which is the last word in scientific construction of a diagnostic building. Provision has been made for a modern x-ray apparatus and its various accessories, rooms for venereal-disease examinations, a surgical laboratory, rooms for examinations of the ear, eye, and throat, and many other up-to-date facilities. Male nurses will also be trained here.

The new Sing Sing has, therefore, been planned as a classification and distributing prison, from which the prisoner, after a definite determination has been made of his mental, physical and economic possibilities, will be assigned to that state institution best suited to his individual requirement.—Amos O. Squire, M. D., chief of medical staff, Sing Sing, *The Modern Hospital*, June, 1922, pp. 509-512.

VITAL STATISTICS*

(Chapter from the Forthcoming Report of the Committee on Municipal Health Department Practice)

INTRODUCTORY

STATISTICAL work is for many reasons one of the least developed of the activities of municipal health departments. The science of vital statistics is still young and its rules and practices as applied in health administration are far from fixed and formulated. It is not often closely connected with specific and urgent health measures. It has been developed largely to serve as a method of control and for purposes of research. It requires often the exercise of a special technique with which many health officers are unfamiliar. As they do not know exactly how to profit from such work, they do not provide for it in their budgets. Nor is it always possible for those health officers who do appreciate the value of good vital statistics, to obtain the necessary funds for this activity from the city authorities, or the coöperative service from the rank and file of the medical profession, who, in the last analysis, are the chief source of the records which make up the material of public-health statistics. Nevertheless, there has been, in recent years, much stimulation of vital statistics in American cities, and health officers are more and more participating in their use. While there is still much diversity of procedure and great inequality of accomplishment, the field of vital statistics is coming rapidly into its own. A real opportunity is presented at this time to standardize and to adapt statistical procedures to the best service of American public health.

At the very outset, distinction must be made between the several activities which make up the statistical work of health departments.

Many health officers consider the registration of births, deaths and perhaps of cases of sickness, as the entire field of vital statistics in their departments. This is, however, only the beginning. In addition, there is the important function of investigation. This involves tabulating the results of the registration of births, deaths and sickness and of analyzing and interpreting the tabulations. It is perhaps equally important to carry out investigations into the make-up of the population and into special phases of the public health. Where properly conducted, the investigations of the public-health statistician should show what the program of the health officer has accomplished and what new activities are called for. The results of vital statistics inquiries should be a guide in developing the policy of the health officer. In this wise, the vital statistics division is an essential element in the health officer's organization. It is the research or checking agency determining what is good from what is bad, and the degree of success which the various divisions of the department attain. Very few health departments have carried out their vital statistics work in this spirit; but, this is obviously the program for the future.

JURISDICTION

In a number of cities, the registration of vital statistics antedates the organization of public-health work. It is not surprising, therefore, to find occasionally that registration is outside the jurisdiction of the health department. Much depends upon the registration laws of the state. In the great majority of the cities, however, in 63 out of the 83 studied, the health department has local jurisdiction. This is true in the 12 largest cities studied, with the exception of Boston and Pittsburgh. Likewise, in the 13 cities of the second class, with the exception of Newark and Jersey City, registration is a local health function; and in 42 out of 58 cities of the third class.

The exceptional situations arise out of the working of the state laws. In Massa-

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chusetts, for example, and in a number of other states, vital statistics registration is under the control of the secretary of state. The local administration of the law is carried out by city or town clerks, who report directly to the state official. In the Massachusetts cities, under this law, the health officers may receive the death certificates from the undertaker, issue the burial permit, and then send the certificate to the city or town clerk, by whom it is filed and return made to the office of the secretary of state. The vital point is, however, that in those cities where the health officer is not the local registrar, he has not direct access to the certificates of birth and of death and he receives copies of them from the town clerk only as a courtesy. They reach him late, and because of his lack of responsibility for them, he is very unlikely to use them for any constructive purpose.

But, even in those states where jurisdiction is with the state department of health, the local health officer may not be the registrar. This apparently occurs in Pittsburgh and Louisville. Confusion of responsibility and duplication of function often result under such conditions.

COMPLETENESS OF REGISTRATION

As the cities are all* in the death registration area, the registration of deaths is reported to be virtually complete in most of them. Seven cities, including Milwaukee, Kansas City, Mo., St. Paul, Omaha, Dallas, Houston, Salt Lake City and Duluth, succeeded in registering only 95 per cent of the deaths. Six additional cities in the middle and southwest, Denver, San Antonio, Des Moines, Fort Worth, Kansas City, Kan., and Oklahoma City, succeeded only to the extent of 90 per cent.

Birth registration, on the other hand, is much less completely carried out.† It is a newer activity in the cities of the country, and only a few of them make the claim of 100 per cent completeness. These are Grand Rapids, Utica, Lowell, Somerville and Elizabeth. The rest vary considerably in the extent of their claimed completeness of registration, from 70 all the way to almost 100 per cent. It is important to note that in the cities of the first class, there are still some, like Cleveland and Chicago, which succeeded only to the extent of between 70 and 80 per cent. Much, obviously, depends upon the location and age of the cities, the provision of the state law and the traditions for good registration that have prevailed in the vicinity.

From the comments made by the field agents of the Committee, it would appear that the best registration is obtained in those cities where the local health department has immediate responsibility. With few exceptions, poor registration results when the local authority is vested in the hands of some one who is not the health officer. This applies especially to birth registration, because the immediate utilization of the birth certificates by the health officer for the conduct of infant hygiene work, stimulates physicians and midwives to return complete and early certificates. On the other hand, where there is no such use made of the birth records by the health officer, registration is likely to be carried out in a perfunctory manner.

PROSECUTIONS AND CONVICTIONS

No prosecutions are on record for the non-reporting of deaths. Only a few cities reported any prosecutions or convictions for non-reporting of births. New York City, for example, reported five prosecutions and five convictions; Norfolk and Savannah, likewise, reported some cases. In Boston a few prosecutions for failure to report births are on record, but warnings are sufficiently effective usually, because of the harmony existing between physicians and the registry department. Similarly, in other cities, much will depend upon the

*With the exception of Forth Worth and Des Moines.

†Only fifty-eight cities in this study are in the Birth Registration Area.

tact and firmness of the registrar and the degree of the coöperation which he can win from the body of physicians.

TABULATIONS AND PUBLISHED REPORTS

Nearly all of the municipal health departments studied make tabulations of one sort or another from the birth and death certificates which they receive, regardless of whether they carry on registration or not. These tabulations are intended to serve either as office manuscripts without publication, or as the source for a variety of tables in weekly, monthly and annual reports.

Very often where no formal printed or multigraphed weekly, monthly or annual report is circulated by the health officer, convenient summaries are submitted to the local newspapers, and these serve as sources of information on important facts of the local vital statistics.

All of the 12 cities in the first group issue an annual report; ten of them issue formal monthly reports, one city (Chicago) includes its monthly summaries with the weekly report. In two of these (Cleveland and Pittsburgh) monthly reports are circulated in typewritten form. In addition, 7 of these first-class cities issue either printed, mimeographed, or typed weekly reports. Twelve of the 13 cities in the second class issue some form of report, 8 an annual report, 10 a monthly and 5 issue a weekly report. All of the cities of the third class, except Camden, Kansas City, Kan., Elizabeth, Utica and Erie, issue some form of weekly, monthly or annual report. In a few cities this report consists often of a single sheet, giving simply the number of deaths during the year from principal causes, the number of births, and a few other items of information which, it seems to the registrar, would be of interest to his local public.

ANNUAL REPORTS

The vital statistics sections of the annual reports vary greatly from city to city, depending very largely upon the resources available in funds and personnel. In a number of cities where a fair amount of valuable detail is shown in the published reports, the date of issue is much delayed, presumably by the lack of adequate clerical assistance to take off tabulations and to prepare the material for the printer. When these reports appear, they are already out of date. But, apart from this criticism, the annual reports of the larger cities are often valuable documents. Those from the cities of New York, Chicago, Philadelphia, Boston and Providence are replete with useful information. The New York report usually contains excellent historical tables on the course of mortality from the principal cause of death. These tables have been supplemented at various times by the issuance of condensed reviews and special monographs abstracted from the manuscript and the records in the New York Registrar's office. A commendable activity in New York City is the preparation of fairly detailed statistics for sanitary areas of New York City.

The Philadelphia annual report gives extensive and valuable information on births by months, ward or residence of mother, by age, color and nativity of mother and by occupation of father. Facts for the causes of death are shown according to titles of the International List of Causes of Death with respect to sex, age, calendar month and wards. The Philadelphia report is one of the few which show annually the occupation of the deceased persons according to certain important causes of death. Mortality from certain diseases, typhoid fever, for instance, is shown by wards of the city and by calendar year. The infant mortality tables are especially rich in detail. Favorable comment should also be made upon the tables shown in the annual report for the Newark Department of Health. The tabular matter is frequently supplemented by graphic charts and these promote the understanding of the historical and comparative facts in an agreeable manner.

Reference is made here only to some of the outstanding features of a few annual reports. It is impossible to discuss at any length the contents of all of them because of the great variations that exist in the types of tabulation, in the arrangement of the data and in the local needs for special information. There is obviously need for greater uniformity in the character of the reports issued by the cities of the various classes as to size. It is recommended that the Section on Vital Statistics of the American Public Health Association be requested to prepare a set of standard tables for use by municipal health departments, with recommendations as to the best size and arrangement of the report. Possibly a plan similar to that outlined in the Cleveland Hospital and Health Survey could be used as a guide. The types of tables on population, birth, death and morbidity statistics shown therein are the kind of statistical material which should be in the annual reports of the larger municipal health departments. It should be remembered that the Census Bureau and the U. S. Public Health Service issue valuable statistical reports on mortality and morbidity for the principal cities, and local departments should strive to avoid duplicating these. The field for the local authorities is obviously to develop detailed data which will facilitate the administrative work of the health department.

MONTHLY REPORTS

The monthly reports are the most frequently issued and the most useful because of their timeliness. They contain usually a summary of the number of deaths which occurred during the preceding month, by principal causes, and in a number of instances by broad age groups, singling out especially the deaths of infants under one year. In addition, there is also in most reports a table showing the number of births reported as well as one giving the number of cases of principal notifiable diseases registered. Outside of these tables, there is very little uniformity among the published tabular results of the several cities. Some give the meteorological data of the previous month for the city in question. Others give summaries of the activities of the employees of various divisions of the department. Again, there is need for standardization of reporting of essential items. Some such arrangement as is shown in the general tables published monthly by the New York City Department of Health could profitably be adopted by the larger cities. In addition to facts on the causes of death, the cities could agree upon a form of statement of the reports of the principal notifiable diseases, and for births and marriages.

WEEKLY REPORTS

The few weekly reports which are published are decidedly scrappy in nature, and, outside of a small number, are hardly of much use. It would be highly desirable if all of the cities would issue simple, uniform weekly statements to supplement what material the general statistical reader obtains from the weekly Public Health Service reports and from the *Census Bureau Weekly Health Index*.

PERSONNEL

Under this head, we may consider the registrar or statistician on the one hand, and the clerical staff on the other. The presence of a full-time registrar or statistician depends upon the size of the city, but equally upon the interest of the health officer in vital statistics as an aid to administration. Thus, in the 12 cities of the first class, there are 9 full-time registrars. In Cleveland, the registrar is on part time. In Baltimore, the health officer acts as registrar, and in San Francisco he is at the same time the chief clerk of the department.

In the 13 cities of the second class, 10 report a full-time registrar or person in direct charge of vital statistics work. In Seattle the health officer acts as registrar. No statement is available for the remain-

ing 2 cities, namely, Jersey City and Indianapolis.

In the 58 cities of the third class, there are full-time registrars in 30. In Providence the registrar is also the superintendent of health. In Bridgeport, Memphis, Dayton and Oklahoma City the registrar is on part time and in one case he is the city physician. In the remaining 23 cities, which are almost all among the smaller ones, there is apparently no one in direct charge of vital statistics. It is presumed that in such cases the duties are merged with those of the health officer or some physician or clerk in the department.

The number and character of the clerical staff vary with the size of the city, with the type of registration law which prevails, but especially with the type of health administration. A health officer who is interested in modern and scientific public-health work will insist upon the tabulation and analysis of the vital data of his population, and he will at least attempt to secure an adequate staff of skilled statistical workers.

In New York City, where excellent traditions of public-health work and vital statistics have long prevailed, the staff includes, in addition to the highly skilled registrar, 5 physicians who are assistant registrars, each supervising a borough, 5 other physicians who issue burial permits, and 55 clerks. Among the latter, 44 are engaged on registration duty, 7 do strictly statistical sheet work, and 4 operate mechanical devices, such as card-punching and sorting machines. There are two counting-sorting machines used in the preparation of the tables, which are equivalent to a considerable number of additional clerks. But disregarding the item of machinery, the number of registration and statistical clerks in New York City is about one per 100,000 of population. In the cities of the first group, the average number of clerks is one per 100,000 of population, in those of the second class .6, and in those of the third class 1.2.

The facts at our disposal clearly indicate that there is a serious deficiency of statistical personnel in the health departments of American cities. To conduct adequate registration of births, deaths and of sickness, and to tabulate and analyze the data so collected, is a serious task in most cities and requires a sufficiently large skilled personnel. From the results achieved in New York City, and in a number of other cities where good vital statistics are produced, it would appear that a minimal clerical staff of one for each 100,000 of population was needed to assist the full-time and well equipped registrar. It is unfair and not at all economical to expect a health officer with his many duties to be the registrar and statistician as well, and almost as undesirable to give the registrar untrained or insufficient help. Where this occurs, it is poor economy, for either the health service must suffer through the lack of necessary guiding data, or through the misuse of the health officer's or registrar's time.

SALARY OF REGISTRAR

Data on the salary paid to the registrar or statistician are available for 43 cities. In some cities, as in Baltimore and Seattle, the health officer functions as the registrar and, apparently, no additional salary is paid. In some cities, as in Providence, the health officer receives an additional stipend as registrar. In others a small salary is paid the registrar, which is supplemented by fees, as in Cincinnati and Toledo; and in a few, as in Atlanta and Reading, the registrar is paid by fees only. In a considerable number, however, little or no statistical work is really conducted and apparently no provision is made to cover the salary of the registrar or his staff.

In the 43 cities where the salary of the registrar is stated, the amount varies markedly. The salary varies naturally with the size of the city. The same degree of skill and of administrative ability is not required of a registrar in a small city of 100,000 as in a city of 1,000,000 or more people. But, while this is gen-

erally reflected by the figures, there are striking exceptions showing how diverse is the conception of the city authorities of the value of such work. Thus, in cities of the first population group, 8 salaries are stated, and these vary from $1,584 in St. Louis to $5,500 in New York City. The next highest amount is in Chicago, $3,800. In Cleveland, the part-time registrar receives $1,750. The average salary paid to full-time registrars by 7 of the first-class cities is just under $3,200.

In the cities of the second class, the salaries of 10 registrars are given. The average for full-time service is $1,850, and varies from $1,260 in Portland to $3,300 in New Orleans. In Cincinnati, the salary of $1,600 is supplemented by fees. In the cities of the second class, all but two, Milwaukee and New Orleans, pay less than $2,000. In 21 cities of the third class, the average salary paid to the full-time registrar or statistical chief is $1,630 and varies from a minimum of $560 in Paterson to a maximum of $2,400 in St. Paul. The part-time registrar in Providence receives a salary of $2,750.

It is clear from the above that the registrar in a considerable number of cities is a clerk acting under the direction of the health officer. Only the routine duties of registrar are carried out under these conditions. It is to be seriously questioned whether persons with adequate skill or ability to function as statisticians of health departments of large cities can be found who will accept salaries so low as those we have quoted. These are, in many instances, less than those usually paid to junior clerks in commercial pursuits. Almost without exception, the salaries paid to registrars in American cities are too low to insure the proper type of statistical service.

COST OF VITAL STATISTICS

It is difficult to give a satisfactory statement on the cost of vital statistics in municipal health departments. This results from the great variety of procedures in American cities. As already pointed out, some of the large cities, Boston, Newark and others maintain a vital statistics division in their health departments and in addition support a registry office in the city clerk's department. In the great majority of cases, however, vital statistics registration is a part of the health department's activities.

Costs as reported to the Committee have not always been clearly classified to show what has been included. We cannot always tell whether the cost as given covers the registration work carried on outside of the health department. In any case, reports are available for 33 cities; 7 of the first class, 7 of the second class, and 19 of the third class. In all, the per capita cost for vital statistics is 1.6 cents. This is also the average figure for the first and second class cities. The average is 2.5 cents for the cities of the third class. The per capita cost is, therefore, greatest in the smaller cities, and it is in them also that the greatest variations are, of course, found. The maximum cost per capita is found in Hartford, where 5.2 cents is expended. There are a number of these smaller cities where apparently nothing is spent on vital statistics. Among the larger cities, there is a little more uniformity of expenditure. In the city of New York, where both registration and vital-statistics analysis are admirably conducted, the cost is 1.5 cents per capita, and in Chicago 1.9 cents. In Boston the per capita cost in the health department is 3.6 cents, but this amount includes the cost of clerical work and supplies for the whole division of vital statistics, records and accounts. What the cost for vital statistics alone is, it is impossible to say. It must be remembered, however, that in Boston a considerable sum, unknown to the Committee, is expended by the division of the city register outside of the health department, so that altogether Boston ranks high in the list of large cities for its expenditures for vital statistics.

In the cities of the second class, the high figure of cost for New Orleans is conspicuous, 4.6 cents per capita. In the cities of the third class, the expenditures for Providence, 4.9 cents; St. Paul, 4.2 cents; Birmingham, 4.1 cents; Hartford, 5.2 cents; Albany, 4.0 cents, all show high figures. The high per capita cost in Providence may be explained by the uniformly high standard of statistical work conducted there. For many years the annual reports of the Registrar have served as models of form, completeness and penetrating analysis of the departmental activities to the health officers of the country.

In view of the accomplishment of New York City and Chicago at costs less than 2 cents per capita, it would appear reasonable to suppose that an expenditure of this amount per capita would bring the results in registration and analysis necessary for the conduct of effective health work in the smaller cities which require fewer tabulations and simpler analyses. It is not always possible to reconcile the high cost of vital statistics work in some of the smaller cities with the character of their published statistical output.

FEES

Fees are usually charged for transcripts of birth and death certificates and on file as the vital-statistics division of health departments who are usually the custodians of these divisions. In fact, this source of revenue often determines the amounts appropriated for vital-statistics work. Of the 68 cities which reported on this item, all charged fees for transcripts. For 38 cities reporting the amount charged, the fee was 50 cents in 26 cities and 25 cents in 8 cities. In Denver the fee is $1.00. The amount thus collected varies, of course, with the size of the city and the demand for transcripts. In New York City nearly $50,000 was collected in 1920. But there are considerable differences in amounts received in cities of about the same size. Thus, Chicago collected a total of $13,200 and Philadelphia only $3,157. Sometimes a large amount is collected in a medium-sized city, as in Hartford ($2,716), indicating perhaps the extent to which the public has been educated to avail itself of the facilities of the registrar. In this way, the amount received in fees is perhaps also an index of the completeness of registration and the regard which the community has for the records on file.

The amounts received are credited in 46 out of the 83 cities to the general fund of the city. There are a few (4), such as Pittsburgh and Memphis, where the fees collected are received by the registrar. In a few cities fees are credited to the health department, as in New Orleans, Indianapolis, Omaha, Duluth, Flint and Canton, and in a few the fees are credited to the state department of health, as in Kansas City, Kan., Reading, Erie, Scranton, Fort Worth and Des Moines.

SUMMARY AND CONCLUSIONS

1. Vital statistics as an effective agency in public-health administration has been developed by only a few municipal health departments.

2. Vital statistics registration is fairly well developed, much better for death registration than for birth registration. The conduct of registration is still complicated by confusion of responsibility. In some states where the law empowers city or town clerks to register vital statistics, the local health departments have no responsibility for the accuracy or completeness of registration. Under such conditions, registration is likely to be unnecessarily expensive and unproductive for constructive health work. The registration of births is then often incomplete, and of deaths rather inaccurate as to statements of cause.

3. Nearly all cities issue some form of report; the monthly report is most frequently issued. The tabulation of data in these reports show very little uniform-

ity as to method of compilation or as to content. There is great need for agreement among health officers and municipal vital statisticians upon what tabulations are called for in cities of different population classes and upon the size and style.

4. The registrars are, for the most part, not well equipped for research work, and, in a considerable number of cities, are paid so inadequately as to preclude the employment of competent men. The clerical staffs are often inadequate in number. On the other hand, in many cities the number is sufficiently large to justify the expectation of better work than is now obtained. A minimal clerical staff of one clerk per 100,000 population, in addition to the registrar or statistician, should generally be sufficient for the conduct of the vital-statistics work of the health department.

5. The average cost of vital-statistics work is 1.6 cents per capita. But there are altogether too many cities which spend next to nothing on their vital-statistics work, and also many cities which, although they spend considerably more than the general average, do not appear to profit particularly from the results obtained.

□

A RAPID, SIMPLE METHOD OF MAKING CHARTS

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THE problem of chart-making for the illustration of students' lectures and for public-health propaganda is a troublesome one, for it is a tedious and time-consuming process. We have tried several methods of lettering in the Institute of Hygiene, such as the rubber stamp, stencilling, etc., but all were found unsatisfactory, for they were slow, and did not give a neat, clean result. In the United States and in Europe cut-out paper letters of various sizes, gummed on one side, are available. These are good but quite expensive, and it is difficult to get a good alignment with them.

We hit upon the idea of having sheets of thin paper printed with letters of different sizes. To make the charts, these letters are cut in squares and pasted side by side. The paper is so thin that at a distance of three to six feet one cannot tell that the letters are pasted and not printed on the large chart.

In order to determine the relative frequency with which various letters occur in medical and public-health literature, we counted the letters on several pages of current medical magazines and obtained the relative proportions in which each letter appeared.[1] In round numbers these are as follows:

Z, V, Q, K, J	1
Y, W, G	10
D, C, U, P, F, M	30
N, I, H, L	60
A, S, O, R	80
T	100
E	150

The numbers 0 and 1 occur many more times than any other numerals for they serve also as o and i. Sheets of letters may be printed in this proportion; that is, for every sheet of q, 150 sheets of e should be printed.

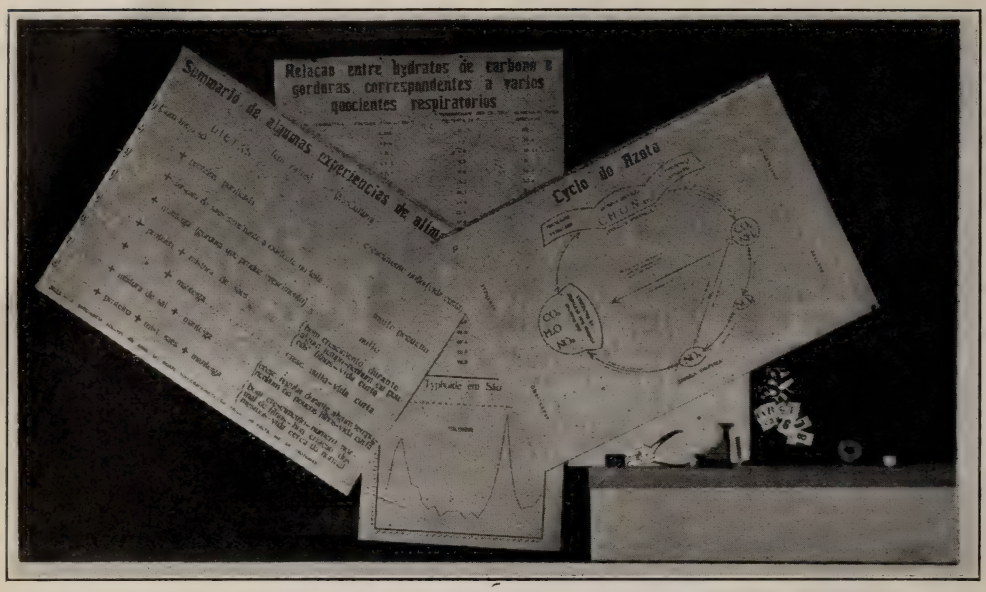
We have found that 5 different sizes of letters, the smallest 0.5 cm., the largest 3.5 cm. high,[2] answer all our purposes. Besides these black types, we have had some letter sheets printed in red ink.

The printed sheet may be gummed, but

[1] *Editor's Note*—In order to make the scheme more useful to American readers, we have analyzed some representative samples from three American medical and health periodicals, with the following approximate results, which may be compared with those for the Portuguese language given by the author:

J, K, Q, X, Z	1
B, G, V, W, Y	20
C, D, F, M, P, U	45
H, L, R	80
A, I, N, O, S	110
T	150
E	200

[2] From 18 to 168 points according to the American system of type measurement.

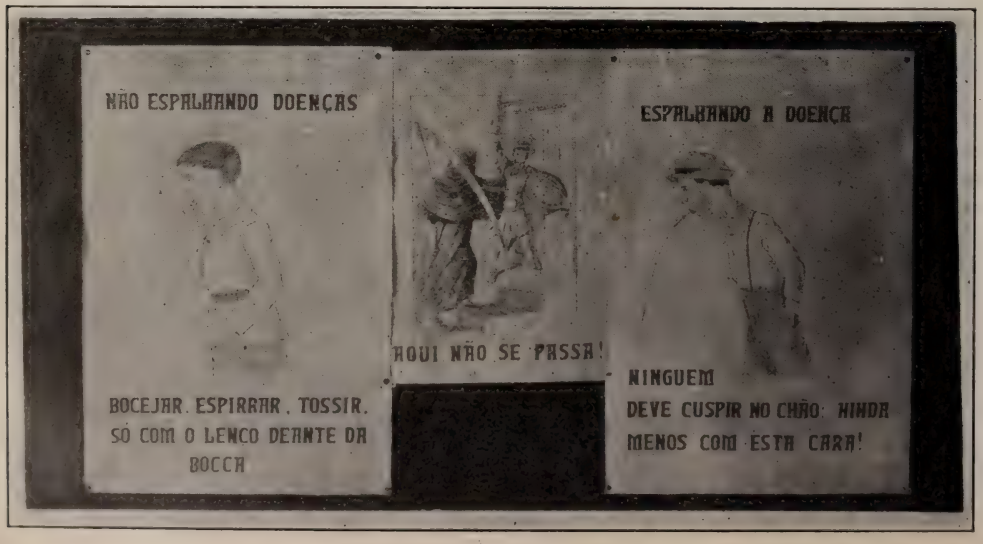


this increases the cost. A better way is to half fill a 4-ounce broad-mouth bottle with gum arabic paste and cover the bottle with two layers of surgeon's gauze. Invert the bottle until the gauze is moistened with the paste and with a small brush paste the letter squares first on the gauze and then on the chart. This process is very rapid, very neat, and clean. The photographs illustrate a few of the charts made by this method together with some of the letter squares.

In order to reinforce the chart at the top so that it may be suspended, a bit of adhesive tape 3 cm. wide is folded over the upper margin of the chart. The tape is then perforated with the common hand punch which shoemakers use to insert eyelets in shoes.

The charts are strong, neat, clean, simple, rapidly made and very inexpensive. The method is especially applicable to county health work propaganda, school hygiene, and public-health instruction.

By this means it is very easy to make use of posters with lettering in a foreign tongue, simply by covering up the legends with these printed letters. This is what has been done in the middle poster in the second photograph.



WATER SUPPLIES*

(Chapter from the Forthcoming Report of the Committee on Municipal Health Department Practice)

OWNERSHIP

In 11 of the 83 cities studied[1] the water supply is owned by a private company, in 3 by the Metropolitan Board of Boston,[2] and in the remaining 69 by the municipality itself.

CONTROL

In none of the 83 cities is the water plant operated by the health department. The degree of control exercised by the health department varies widely. In 31 cities no control is exercised by the municipal health department.[3] In the case of 24 of these 31 cities, however, the state department of health maintains close supervision over municipal water supplies. This is notably true of cities in Massachusetts, Pennsylvania, Ohio, California, Michigan and Minnesota.

Of the remaining 52 cities, information is not available regarding 5.[4] The degree of control exercised by the remaining 47 is as follows: "Controls" 3 cities,[5] "Advises or Supervises" 6 cities.[6] In 4 cities, Atlanta, Cincinnati, New York and Richmond, the health department "Coöperates" in the control of the water works. In 3 cities, Portland, Scranton and Seattle, the health department maintains patrol of the watershed, Scranton and Portland conducting analyses in addition to the patrol. In 30 cities the health department laboratory makes analyses of the city water supply. In 3 cities, Jacksonville, Savannah and Syracuse, the health department makes all analyses. In 8 cities, Buffalo, Cleveland, Dallas, Dayton, Indianapolis, Milwaukee, Yonkers, Youngstown, analyses are made daily; in 2, Louisville and New Haven, analyses are made weekly; in the remaining 17[7] the frequency is not stated or is longer than one week.

CHARACTER OF SUPPLY

The number of cities having water supplies from underground, surface and mixed sources, with the populations served, and subdivided according to the method of treatment is shown in the accompanying table.

According to this table, 12 cities use water from underground source exclusively, of which 11 are from wells,[8] and one, Des Moines, from infiltration galleries in a river. The 64 cities using water from surface sources are supplied: 26 from rivers; 30 from lakes, ponds and impounding reservoirs; 7 from the great lakes, and 1, Albany, from a mixture of river and lake water. Mixed underground and surface waters are supplied to 7 cities. Altogether 4.9 per cent of the total population of the cities surveyed use water from underground sources, 88.6 per cent use water from surface sources, and 6.5 per cent are supplied with mixed surface and ground water.

TREATMENT OF WATER

Of the 83 cities only 9 cities serving 4 per cent of the total population use water without some form of treatment. Eight[9] of these supplies are from wells and one, Portland, from mountain

*Prepared by Allen W. Freeman, M. D., Johns Hopkins University, Baltimore, Md.

1. San Francisco, Indianapolis, Birmingham, Bridgeport, Elizabeth, New Haven, Oakland, Paterson, San Antonio, Scranton and Utica.
2. Boston, Lynn, Somerville.
3. Los Angeles, San Diego, San Francisco, Wilmington, Washington, Kansas City, Kansas, Boston, Cambridge, Fall River, Lawrence, Lowell, Lynn, New Bedford, Somerville, Worcester, Flint, Kansas City, Missouri, St. Louis, Omaha, Camden, Akron, Canton, Columbus, Toledo, Reading, Duluth Minneapolis, St. Paul, Providence, Fort Worth, Spokane.
4. Denver, Erie, Elizabeth, Paterson, Trenton.
5. Detroit, Newark, Utica.
6. Baltimore, Hartford, Houston, Salt Lake City, Memphis, Schenectady.
7. Albany, Birmingham, Bridgeport, Des Moines, Grand Rapids, Jersey City, Nashville, New Orleans, Norfolk, Oakland, Oklahoma City, Philadelphia, Pittsburgh, Rochester, San Antonio, Springfield, Tacoma.
8. Memphis, San Antonio, Dayton, Houston, Camden, Lowell, Spokane, Jacksonville, Schenectady, Canton, Savannah, Portland.
9. San Antonio, Houston, Camden, Lowell, Spokane, Schenectady, Canton and Savannah.

TABLE

SOURCE AND METHOD OF TREATMENT OF WATER SUPPLIES
83 AMERICAN CITIES
Showing Number of Cities Having Supplies of Each Type and the Population Supplied

METHOD OF TREATMENT	SOURCES OF SUPPLY									
	Underground Sources		Surface Sources				Mixed Underground and Surface	Total Number	Population Supplied	Per Cent of Total
	Wells	Infilt. Galleries	Rivers	Impounding Ponds, Lakes, etc.	Great Lakes	Mixed				
No treatment	8	0	0	1	0	0	0	9	1,150,514	4.0
Storage only	0	0	0	7	0	0	0	7	1,868,431	6.5
Storage and Chlorination	0	0	0	11	0	0	0	11	7,564,647	26.3
Chlorination only, Complete	2	1	0	0	5	0	0	8	5,128,807	17.8
Chlorination only, Partial	1	0	0	2	0	0	1	4	1,152,884	4.0
Coagulation, Sedimentation and Chlorination	0	0	6	1	0	0	0	7	1,832,406	6.4
Rapid Sand Filtration and Chlorination	0	0	15	4	1	0	2	22	4,516,823	15.7
Slow Sand Filtration	0	0	0	1	0	0	0	1	129,614	0.4
Slow Sand Filtration and Chlorination	0	0	5	3	0	1	0	9	3,640,645	12.6
Mixed treatment	0	0	0	0	1	0	4	5	1,818,485	6.3
Total Number Cities	11	1	26	30	7	1	7	83	.....	.....
Population Supplied	1,298,694	126,168	8,041,720	11,721,519	5,648,435	113,344	1,853,076	.....	28,803,256	.....
Percent of Total	4.5	0.4	27.9	40.7	19.6	0.4	6.5	100.0	.....	100.0

streams from an uninhabited watershed.

Storage is the principal method of treatment in 18 cities, serving 32.8 per cent of the population. Of these, 7 use storage alone[1] and 11 use chlorination in addition.[2]

Chlorination alone is relied on by 8 cities serving 17.8 per cent of the population. Of these, 2, Jacksonville and Dayton, are well supplies, one, Des Moines, from infiltration galleries, and five, Chicago, Detroit, Buffalo, Milwaukee and Duluth, from the Great Lakes. Four cities serving 4.0 per cent of the population use chlorine for part of the year or for part of the supply.[3]

Coagulation with alum or lime, followed by sedimentation and chlorination, is used in 7 cities, serving 6.4 per cent of the population. Of these supplies 6 are from rivers,[4] while one, San Diego, is an impounded supply.

Coagulation, sedimentation and rapid sand filtration followed by chlorination is the method of treatment in 22 cities, representing 15.7 per cent of the population of the group.[5]

Slow sand filtration plants serve 10 cities having 13.0 per cent of the total population. Of these, 9 use chlorination as a final treatment[6] and only one, Springfield, is not chlorinated.

In five cities having 6.3 per cent of the population of the group, the supply is taken from two or more sources which are treated differently. In Cleveland all the water is taken from Lake Erie, but part of the water is filtered by rapid sand filters and chlorinated, while part is served to the consumers after chlorination alone. In Los Angeles part of the water is taken from infiltration galleries and supplied without treatment, while part from impounded streams is treated by storage. An additional supplementary supply is chlorinated before distribution. In Indianapolis part of the supply is derived from wells and delivered without treatment, while another part is filtered by slow sand filters and chlorinated. In Denver the supplies from three different sources are all treated differently, 10 per cent of the supply being taken from infiltration galleries is distributed without treatment, while 20 per cent from surface streams is treated by slow sand filters, and 70 per cent of the total is treated by rapid sand filters. Liquid chlorine, hypochlorite of lime and "chloramine" are used for final disinfection. In St. Paul part of the supply is derived from wells and part from lakes. The lake supply is chlorinated.

1. Boston, San Francisco, Worcester, New Bedford, Fall River, Lynn and Somerville.
2. New York, Newark, Seattle, Jersey City, Syracuse, New Haven, Bridgeport, Hartford, Cambridge, Tacoma, Utica.
3. Salt Lake City, Los Angeles, Memphis and Rochester.
4. St. Louis, Kansas City, Mo., Omaha, Birmingham Richmond, and Nashville.
5. Baltimore, Cincinnati, New Orleans, Minneapolis Toledo, Columbus, Louisville, Akron, Atlanta, Dallas, Grand Rapids Paterson, Youngstown, Trenton, Norfolk, Wilmington, Fort Worth, Kansas City, Kans., Elizabeth, Erie, Flint and Oklahoma City.
6. Philadelphia, Pittsburg, Washington, Providence, Scranton, Albany, Reading, Yonkers, Lawrence.

LABORATORY CONTROL AND TREATMENT

Of the 83 cities, 69 either have a laboratory at the water plant or other arrangements for daily laboratory examination of the raw and treated waters. This includes all rapid and slow sand filtration plants except the rapid sand plant at Oklahoma City, which is said to be without laboratory control of any kind. It also includes all coagulation and sedimentation plants and numerous plants depending on storage, chlorination or both. Of the 14 cities without laboratory control, Oklahoma City has already been referred to. Four well supplies used without treatment are without laboratory control. Examinations are said to be made every three months by the state of the Camden well supply, every month of the Houston well supply, weekly of the Spokane well supply, and never, except when new wells are drilled, at Canton, Ohio. The stored supplies of the Massachusetts cities are controlled by the state, laboratory examinations being made monthly. This includes Worcester, New Bedford, Fall River, Cambridge and

Lynn. Syracuse and Rochester, N. Y., report that their supplies, from storage, are examined twice weekly. The San Francisco stored supply is examined monthly, and the Seattle stored supply is examined weekly.

DISTRIBUTION OF PUBLIC WATER SUPPLIES

Information is available as to the percentage of the population of 82 of the surveyed cities furnished with the public supply. In 29 cities the public water supply is used by 100 per cent of the population and in an additional 26 cities the percentage is 95 or more. This includes practically all of the larger cities of the country. In 15 cities[1] the population supplied is between 90 and 95 per cent. In 6 cities[2] the percentage supplied is between 80 and 90. In Oklahoma City of this group, however, while the public water supply is distributed to 84 per cent of the population, only 30 per cent are said to use it for drinking. In 5 cities[3] the percentage of population using is between 70 and 80. In Kansas City, Kans., the public water supply is distributed to 68 per cent of the population.

CONSUMPTION OF WATER

The figures for consumption of water are available for 68 of the 83 surveyed cities. Daily per capita consumption varied between 49 gallons for Lawrence to 259 gallons for Chicago. Other cities with low rates of consumption are Oakland, 50 gallons; Fall River, 53 gallons; Dallas, 62 gallons; Des Moines, 68 gallons; San Francisco, 70 gallons, and Worcester, 75 gallons.

Rates of consumption of 200 gallons per capita per day and over were as follows: Savannah, 200; Spokane, 201; Buffalo, 229; Tacoma, 230; Salt Lake City, 235, and Chicago, 259. Of the 68 cities for which the information is available, 47 had a daily per capita consumption of between 75 and 150 gallons.

PRIVATE WATER SUPPLIES

The data regarding private water supplies are not sufficiently detailed to make a statistical analysis possible. In most cities in which there are any considerable number of private wells some effort is apparently made to control the quality of these supplies. Data as to the actual number of private wells, and the quality of the water supplied by them, are not available for any considerable number of cities. Similar conditions prevail in regard to the vended bottled waters.

DISCUSSION

The water supplies of the 83 cities surveyed are predominantly owned by the municipalities themselves. The relationship of the water supply to the health of the community using it is so direct and of such tremendous importance that it is necessary that the responsibility for the water supply be borne by the muncipality.

Control over the public water supply is not usually a function of the health department. It is predominantly an engineering procedure and should be, as is usually the case, a separate department of the city government. The health department should, however, advise with the authorities in control of the supply and should, except in unusual cases, check the quality of the water by regular and frequent analyses. This is found to be the case in the majority of the cities studied, and in the remainder the control exercised by the state is usually close and accurate.

The public supplies of the 83 cities are for the most part derived from surface sources and are treated in a wide variety of ways. Chlorination as a final treatment is used in almost all the cities studied. The stored supplies of Massachusetts and a few well supplies of the middle west are almost alone in being used without chlorine.

The plants are as a rule under close

1. Cincinnati, Denver, Toledo, Oakland, Omaha, Richmond, Dallas, Dayton, Houston, Grand Rapids, Youngstown, Des Moines, Reading, Tacoma, Flint.
2. St. Paul, San Antonio, Nashville, Salt Lake City, Duluth, Oklahoma City.
3. Washington, Indianapolis, Akron, Fort Worth, Jacksonville.

laboratory control. This applies to all slow sand filters, all rapid sand filters except one, all coagulation and sedimentation plants and to a number of the well supplies and storage systems. The stored systems of Massachusetts are not usually under local control, monthly analyses by the state being deemed sufficient. The adequacy of this system is apparently demonstrated by the low prevalence of typhoid fever in these cities.

The variations in water consumption are extreme and would appear much larger than the difference in legitimate demand would justify. Metering of the consumers in the cities with excessive consumption would probably decrease the per capita waste without affecting the use of water for all necessary or desirable purposes. The distribution system of the older eastern cities and of many of the other cities is complete. In a number of cities, however, the public supply fails to be used by a large per cent of the population.

Regulation of private wells and springs and of vended waters does not seem to be a practicable procedure.

The discussion of typhoid fever in relation to the character of the water supply will be taken up in the section on communicable diseases.

□

Training for Hospital Social Work

The New York School of Social Work offers this year a course of training for hospital social work, which includes the following subjects: Health and Nutrition with especial reference to child hygiene, given by Dr. A. M. Stevens; Problems of Disease by Dr. Samuel Bradbury; History and Organization of Medical and Nursing practice, Dr. George Bigelow; Public Health, by Dr. Michael M. Davis, Jr.; a seminar in Medical Social Problems, Dr. Davis and Miss Antoinette Cannon; Social Case Work, Miss Margaret Leal; Community Organization, Mr. Walter Pettit; Human Behavior, Dr. Bernard Glueck; Statistics and Research, Miss Kate Claghorn, and electives in Industry, Child Welfare, Criminology, and other subjects. Practice will be given in the clinics of Cornell Medical School and other institutions.

The standard entrance requirement of the school is four years of college work. Students with less than four years of college but with graduation from an approved school of nursing may also be admitted. The full course covers two years. Credit will be given for courses and practice considered by the head of the department the equivalent of any of the above. The school issues a special bulletin on this course, which may be had from the registrar, 105 East 22nd Street, New York City. The court begins September 18, 1922.

Public-Health Nursing of the American Red Cross.—The public-health nursing activities of the American Red Cross reach the rural communities where there are no other public-health activities, and no organization dealing with public-health work. It is the policy of the Red Cross, as soon as the community realizes the good done by the public-health nurse, to ask the local authorities to take over the work. The Red Cross then moves on to another county and serves as a pioneer, almost as knight errant, in promoting simple public-health activities. It is not the desire of the Red Cross to be in competition with other agencies, or to encroach upon any function of the practicing physician.

The instances where the nurses may have exceeded their authority have been few and always prompted by a humane instinct, amounting at times to compulsion, to render an imperative service without the delay required to secure medical approval. It must be remembered that some of our nurses work in localities where the nearest doctor is far away, at times as much as seventy-five miles away.

The American Red Cross appreciates and respects the physician, and, almost without exception, has their active help and sympathetic coöperation in all the communities Cross nurse does her splendid work.—John Barton Payne, Chairman, Central Committee, *Red Cross Courier,* June 10, 1922. (*J. A. T.*)

FIFTY-FIRST ANNUAL MEETING OF THE A. P. H. A.

Many features will combine to make the fifty-first annual meeting of the Association, to be held in Cleveland, Ohio, October 16 to 19, one of the most enjoyable in the Association's history. The central location of Cleveland is expected to produce a large attendance, second only to that of the Semicentennial meeting in New York.

Matters connected with the reorganization of the Association, which has been in progress for the last six months, are expected to occupy a foremost place in the proceedings. The various committees which have been at work upon these matters will present their reports, which are naturally of the greatest interest and importance to the members of the Association.

Business, however, will not displace the usual scientific sessions, which are the main object of the meeting. Programs will be offered this year by the following sections: Laboratory, Vital Statistics, Public Health Administration, Sanitary Engineering, Industrial Hygiene, Food and Drugs, and Child Hygiene. In addition the provisional sections on Health Education and Publicity and on Public Health Nursing will meet. Officers of the various sections, including the program chairmen responsible for the section programs, are listed on the first advertising page of the JOURNAL. At this writing, only a very incomplete and tentative idea of the programs can be given. Plans of some of the sections may be indicated tentatively as follows:

Child Hygiene

Papers by:

DR. JULIUS LEVY, Director Bureau of Child Hygiene, State Board of Health, New Jersey. Maternal Mortality and Mortality in the First Month of Life.

DR. H. J. GERSTENBERGER, Medical Director, Babies' Dispensary, Cleveland, Ohio. Preventive Infant Feeding—Its Simple Application.

EDGAR SYDENSTRICKER, Statistician, U. S. Public Health Service. Indices of Growth in Children.

DR. ARNOLD GESELL, Professor of Child Hygiene, Director of Psycho-Clinic, Yale University.

DR. MERRILL E. CHAMPION, Director, Division of Child Hygiene, Massachusetts Department of Health. The Channel and Some Shoals in Municipal and State Child Hygiene Administration.

DR. KENNON DUNHAM, Cincinnati, Ohio.

DR. HOWARD CARPENTER, Philadelphia. Should the Social Service Department in Children's Hospitals Be Superseded by Departments for Prevention of Diseases?

DR. THOMAS L. MCKAY, Director, Division of Maternity, Infancy and Child Hygiene, Albany, N. Y. The New York State Program for Maternity and Infant Welfare.

Health Education and Publicity

Round-table discussions will be devoted to the following topics:

Use of the Spoken Word: Dialogues before various audiences, lantern slide talk, neighborhood meeting, broadcasting health information by radio, graphic talk, speakers' bureau.

A Clinic on Printed Matter: Critical examination of leaflets for popular use, by publicity experts, with regard to copy, illustrations, style and typography, etc.

Health moving pictures, playlets, publicity luncheons, exhibits of publicity matter, and other features will complete the program.

Public Health Administration

Address of Chairman.

Symposium. Next Step for State Health Departments. Discussion by prominent state health officers.

Round Table. Plans to Reduce the High Mortality from Acute Respiratory Diseases in Winter.

Control of Milk Supplies as a Public Health Measure and the Value of Pasteurization in the Prevention of Epidemics.

Report of Results of Work at the Chicago Pageant of Progress on Milk Ordinance for a Small City.

Symposium. Control of Diphtheria.

Committee Reports.

Food and Drugs

Address of Chairman, R. E. DOOLITTLE, Bureau of Chemistry, U. S. Dept. of Agriculture.

A New Method of Transporting Milk from the Country to the City (Illustrated), JAMES P. KILCOURSE, Chief, Food Inspection Bureau, Dept. of Health, Chicago, Ill.

The Present Status of Glandular Therapy (Illustrated), LOUIS KLEIN, M. D., Parke, Davis & Company, Detroit, Mich.

Important Considerations in the Relation of Food to Disease, Committee on Relations of Food to Disease, J. C. GEIGER, M. D., U. S. Public Health Service, Chairman.

Report of Committee on Problems of Canning, WM. D. BIGELOW, PH. D., Chief Chemist, National Canners Association, Washington, D. C., Chairman.

Character of "Moonshine" Liquors, ROY A. HAYNES, Federal Prohibition Commissioner, Washington, D. C.

The History of Cold Storage, Committee on Cold Storage, PETER H. BRYCE, M. D., Ottawa, Canada, Chairman.

The Place of Proteins in the Diet in the Light of the Newer Knowledge of Nutrition, H. H. MITCHEL, PH. D., Asst. Professor of Animal Nutrition, University of Illinois.

The Present Status of Our Knowledge of Vitamines, Committee on Nutritional Problems, HENRY C. SHERMAN, PH. D., Professor of Food Chemistry, Columbia University, Chairman.

The European Food Deficiency and Its Effect on Public Health. (Speaker will be announced later.)

Report of Committee on Drugs and Nostrums, HAROLD J. KNAPP, M. D., Chief Diagnostician in Charge of Laboratories, Dept. of Public Welfare, Cleveland, Ohio.

Report of Committee on Habit Forming Drugs, CHAS. E. TERRY, M. D., Committee on Drug Addictions, New York City.

Effect of Fraudulent and Extravagant Advertisements of Food and Drugs on Public Health. (Speaker will be announced later.)

The Sanitation of Bottled Beverages and Soda Fountain Drinks, JAMES P. KILCOURSE, Chief, Food Inspection Bureau, Dept. of Health, Chicago, Ill.

Coffee, Its Origin, Derivation, and Physiologic Properties, PROFESSOR SAMUEL S. PRESCOTT, Dept. of Biology and Public Health, Massachusetts Institute of Technology.

Report of Committee on Preparation, Packing and Transportation of Foods, FRED C. BLANCK, State Dept. of Health, Baltimore, Md.

Report of Committee on Retail Distribution and Marketing of Foods, WILLARD E. WARD, Dept. of Health, Brookline, Mass.

Report of Committee on Meat Inspection, W. A. LIPMAN, M. D., Swift & Company, U. S. Yards, Chicago, Chairman.

Report of Committee on Conservation and Development of Food Supplies, R. M. ALLEN, Director, Research Products Dept., Ward Baking Committee, New York City.

Vital Statistics

EPIDEMIOLOGY

The Importance of Epidemiology as an Administrative Function of Health Departments, WADE H. FROST, M. D., Surgeon, U. S. Public Health Service, Professor of Epidemiology, Johns Hopkins University.

The Influence of Epidemiology Upon Present Day Methods of Control of Communicable Disease, HAVEN EMERSON, M. D., Professor of Public Health, Columbia University.

The Epidemiological Work of State Health Departments.

Discussions: Edward S. Godfrey, Jr., M. D., New York; R. W. Pryer, D. P. H., Michigan; Frank G. Boudreau, M. D., Ohio; E. C. Levy, M. D., Virginia; D. C. Bowen, New Jersey; Charles V. Chapin, M. D., Rhode Island.

STATISTICAL EVALUATION OF PUBLIC HEALTH ACTIVITIES

RAYMOND PEARL, PH. D., Sc.D., LL.D., Professor of Biometry and Vital Statistics, School of Hygiene and Public Health, Johns Hopkins University.

Discussion: E. C. Meyer, Ph. D., International Health Board; Otto R. Eichel, M. D., New York; E. W. Kopf, New York.

VITAL STATISTICS

Development of Vital Statistics in Canada, E. S. MACPHAIL, Supt., Dominion Bureau of Statistics, Ottawa.

Mortality Statistics in South American Republics, FREDERICK L. HOFFMAN, LL. D., Dean of Advanced Department, Babson Institute.

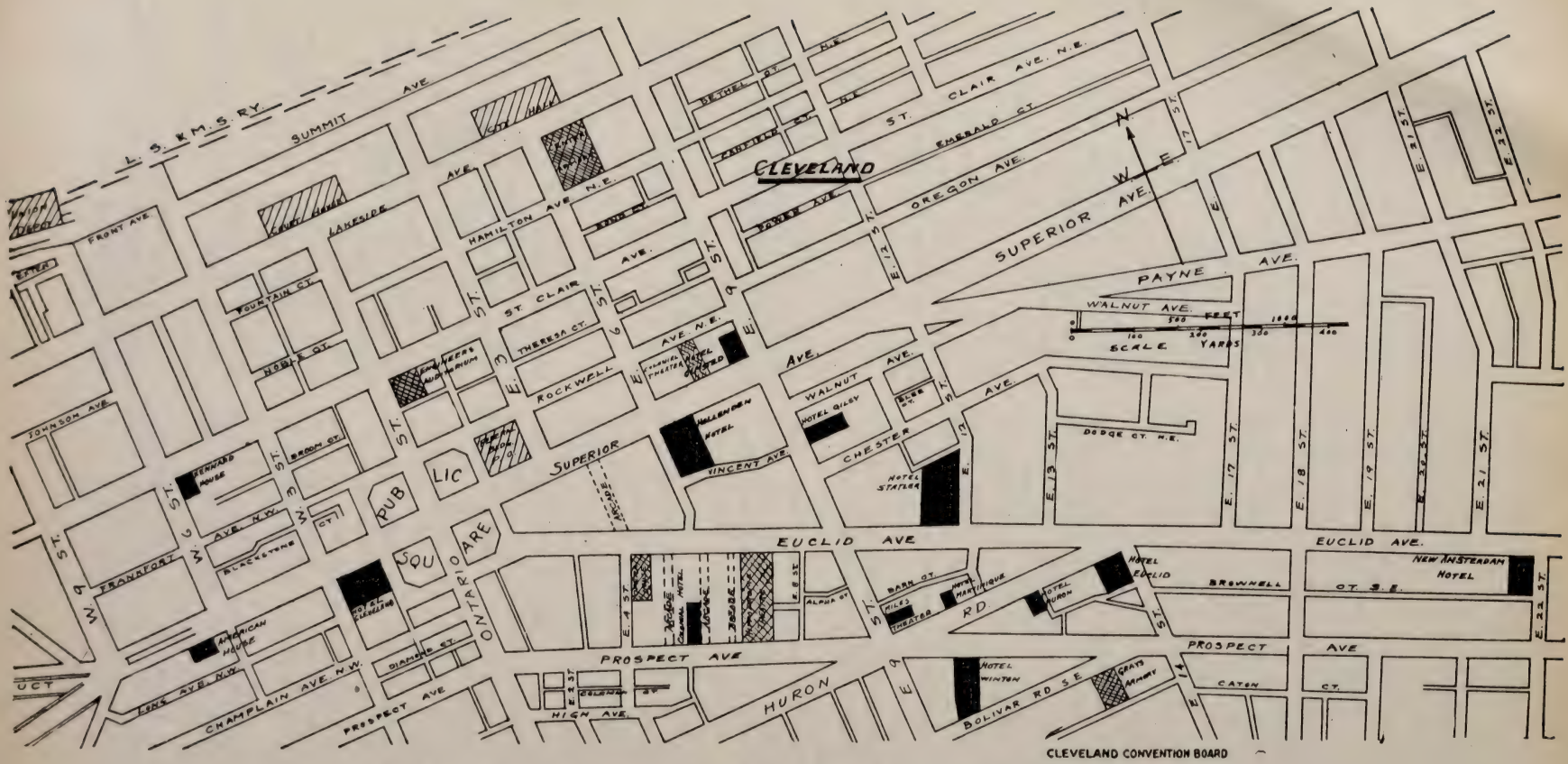
Some Practical Problems in the Improvement of the Registration of Births, OTTO R. EICHEL, M. D., Director, Division of Vital Statistics, New York State Dept. of Health.

Some Practical Problems in the Improvement of the Registration of Deaths in a Southern State, STUART G. THOMPSON, D. P. H., Director, Bureau of Vital Statistics, Florida Board of Health.

Round Table Discussion on Morbidity Reports.

REPORTS OF COMMITTEES

Public Health Climatology, DR. GEORGE T. PALMER, Chairman.



Sketch map of the downtown section of Cleveland, showing the headquarters of the A. P. H. A. convention (Hotel Statler, corner of Euclid Avenue and East 12th Street), the other principal hotels, public buildings, etc. Distance between Hotel Statler and the Public Square is slightly less than a half mile.

Institutional and Hospital Statistics (with especial reference to statistics of cancer), DR. F. L. HOFFMAN, Chairman.

Educational and Professional Standards for Statisticians, E. W. KOPF, Chairman.

Forms and Methods of Statistical Practice (with suggestions as to tables for morbidity reports), R. C. LAPPIN, Chairman.

Accuracy of Certified Causes of Death and Its Relation to Mortality Statistics and the International Classification, DR. HAVEN EMERSON, Chairman.

Registration Affairs, DR. W. H. DAVIS, Chairman.

Securing the Next International Conference on the Classification of the Causes of Sickness and Death.

Sanitary Engineering

The program of the Sanitary Engineering Section will probably consist largely of committee reports as follows:

Mosquito Control (Progress Report), M. Z. BAIR, Chief Engineer, State Board of Health, Little Rock, Arkansas.

Bathing Places, G. W. SIMONS, JR., Chief Engineer, State Board of Health, Jacksonville, Florida.

Refuse Collection (Progress Report), M. N. BAKER, Associate Editor, Engineering News-Record, New York City.

Sludge Disposal, LANGDON PEARSE, Sanitary Engineer, The Sanitary District, Chicago, Ill.

Milk Supply, H. A. WHITTAKER, Director, Division of Sanitation, State Board of Health, Minneapolis, Minn.

Industrial Hygiene

There will be a joint meeting with the Ohio Association of Industrial Physicians. There will also be an automobile trip to the splendid plant of the National Lamp Works at Nela Park, where one of the sessions will be held.

"The Tuberculosis Problem in Industry." (Illustrated.)

"Health Education in Industry." (Illustrated.)

"Industrial Lighting," Practical Demonstration of Modern Plant Lighting as Exhibited in a Factory and Engineering Laboratory.

Address of President of O. A. I. P.

"Skin Diseases in Industry."

"Computation of Partial Loss of Vision."

"Practical Mental Hygiene in Industry with Report of Cases."

Provisional Section on Public Health Nursing

Miss Margaret E. Burkhardt, Bridgeport, Conn. Presentation and Discussion of the Chapter on Public Health Nursing of the Report of the Committee on Municipal Health Department Practice.

Miss Elizabeth Holt, Dayton, Ohio. The Coördination of Public and Private Agencies in the Conduct of a Completely Generalized Public Health Nursing Service.

Miss Mary Laird, Rochester, N. Y. The Importance of Home Visiting.

Owing to the very recent organization of the Provisional Section on Public Health Nursing, this program is as yet incomplete. A more complete statement will be published later.

CLEVELAND HOTELS

Headquarters for the fifty-first annual meeting will be at the Hotel Statler, corner of Euclid Avenue and East 12th Street, in the heart of the retail shopping, business and theatre district. The Statler is admirably adapted for convention purposes, with its meeting and exhibit rooms, all of which are on the mezzanine floor. It contains 1,000 rooms, all with private baths. Most of the other hotels on the following list are within a radius of one mile from the convention headqurters and the Public Square. Cleveland has four large first-class hotels with from 600 to 1,000 rooms, and together with the smaller hotels in the downtown district, is amply able to take care of the Association delegates.

Four large national conventions will be meeting in Cleveland at the time of the A. P. H. A., and if you wish the most desirable accommodations, do not delay sending your reservation at once. The hotels are anxious to coöperate but cannot promise rooms unless you write early.

Applications for rooms should be made directly to the hotels. For convenience a reservation blank is printed herewith, which may be cut out, filled in, and mailed to the hotel of your choice. Room rates for the Cleveland hotels are given below:

AMERICAN HOUSE (150 rooms)
639-49 Superior Ave., N. W.

Room rates
Room, one person, with bath.....$2.50–$3.00
Room, one person, without bath... 2.00
Room, two persons, with bath.... 3.00– 4.00
Room, two persons, without bath. 3.00

CLEVELAND HOTEL (1,000 rooms)
Superior Ave., N. W., at Public Sq.

Room, one person, private bath..$2.50–$7.00
Room, two persons, private bath. 4.50–10.00

COLONIAL HOTEL (150 rooms)
Prospect Ave., at Colonial Arcade

Room, one person, private bath..$2.50–$3.50
Room, one person, without bath. 2.00– 2.50
Room, two persons, without bath. 3.00– 3.50
Room, two persons, private bath. 4.00– 5.00

EUCLID HOTEL (200 rooms)
Euclid Ave. at E. 14th St.

Room, one person, without bath..$1.50–$3.00
Room, one person, with bath.... 2.50– 3.50
Room, two persons, without bath 2.50– 4.00
Room, two persons, with bath... 4.00– 6.00

GILLSY HOTEL (350 rooms)
E. 9th St. at Chester Ave.

Room, one person, without bath.$1.50
Room, one person, with bath..... 2.00–$3.00
Room, two persons, without bath 2.50– 3.00
Room, two persons, with bath... 3.00– 4.00

THE HOLLENDEN (800 rooms)
Superior Ave. at E. 6th St.

Room, one person, with bath....$3.00–$6.00
Room, two persons, private bath. 5.00– 8.00

MECCA HOTEL (120 rooms)
1862 E. Ninth St.

Room, one person, with bath.....$1.50–$2.00
Room, one person, without bath. 1.50
Room, two persons, with bath... 3.00

NEW AMSTERDAM (350 rooms)
Euclid Ave. at E. 22nd St.

Room, one person, with bath....$2.00
Room, two persons, with bath... 3.50–$4.00

OLMSTED HOTEL (300 rooms)
Superior Ave. at E. 9th St.

Room, one person, private bath..$2.50–$4.00
Room, two persons, with bath.... 4.00– 6.00

STATLER HOTEL (1,000 rooms)
Euclid Ave. at E. 12th St.

Room, one person, with shower....$3.00–$4.00
Room, two persons, with shower... 4.50– 5.50
Room, one person, with bath..... 3.50– 8.00
Room, two persons, with bath..... 5.50–10.00

WINTON HOTEL (600 rooms)
Prospect Ave, nr. E. 9th St.

Room, one person, private bath..$3.00–$5.00
Room, two persons, with bath.... 5.00– 8.00

(Cut off on this line)

HOTEL RESERVATION BLANK

To .....
(Name of Hotel)

.....
(Address of Hotel)

Please reserve for me.....rooms for.....persons for the A. P. H. A. Meeting. (Cross (X) is placed after my preference.)

With bath:	Without bath:
Single room	Single room .....
Double room	Double room .....

Maximum rate per day for room.....

Minimum rate per day for room.....

I expect to arrive Oct..... If date of arrival is changed I agree to notify you at least 24 hours in advance.

Please acknowledge this reservation.

Name .....

Street Address .....

City..... State.....

EXHIBITS

Unusually attractive exhibits will engage the attention of the visitors to the Cleveland meeting. Commercial and scientific firms have contracted for space in the North Foyer and Lattice Room on the mezzanine floor of the Hotel Statler, which will be attractively partitioned and decorated. Exhibits will be open daily from 8:30 a. m. to 6 p. m., opening Monday morning, October 16, and closing on Thursday, October 19.

The list of commercial exhibitors to date includes the following firms: Colgate Co., Fairbanks, Morse & Co., Wilmot Castle Co., Lathrop Co., Will Corporation, Sanborn & Co., Gilliland Laboratories, Pepsodent Co., Lyons Sanitary Urn Co., J. B. Ford Co., Horlick's Malted Milk, and Wallace & Tiernan.

A feature of this year's exhibit, and the first of its kind at any A. P. H. A. convention, is the coöperative book-stall. The leading general publishers and all the most important medical publishers of the country are participating in this feature. Complete showings of the most important new and standard works in all fields of public health will be available. In no other place is it possible to see all these books together at one time. This will be a unique opportunity for sanitarians to acquaint themselves with the newest thought in the field, and to bring their private, as well as their department, libraries up to date.

LOCAL COMMITTEE

The committee in charge of local arrangements for the Cleveland meeting is as follows:

General Committee

Chairman: J. J. Thomas, M.D., 5005 Euclid Ave.

Vice-Chairman: Roger G. Perkins, M.D., Medical School, Western Reserve University.

Secretary: E. A. Peterson, M.D., 206 Electric Bldg.

Committee Chairmen

Finance: R. H. Bishop, Jr., M.D., Lakeside Hospital.

Entertainment: Miss Ruth Stone, 508 Electric Bldg.

Exhibits: H. L. Rockwood, M.D., City Hall.

Registration, Information and Transportation: Mr. G. L. Bour, Convention Board, Chamber of Commerce.

Hotels and Rooms: Mr. George A. Bellamy, Hiram House, 2730 Orange Avenue

Meeting Rooms and Projection Apparatus: G. E. Harmon, M.D., Medical School, Western Reserve University.

Publicity: Mr. Guy M. Wells, Secretary, Academy of Medicine.

RAILROAD RATES TO CLEVELAND

As at the New York City meeting, reduced fares of one and one-half times the regular single trip rate to Cleveland will be available to the majority of members of the American Public Health Association, on the identification certificate plan. The reduced rate has so far been granted by passenger associations covering practically the entire United States and Canada, and it is expected that the other American passenger associations will also grant the reduced rate.

Dates of Sale

Dates of sale (starting dates) vary according to the location. In general they cover the period of October 12-18 inclusive. Inquire of your local agent for definite information on starting dates.

Final Return Limit

Tickets will be validated at Cleveland by the respective agents at the regular ticket offices of the lines used, on any date after arrival. They must be used returning to reach the original point not later than midnight of October 25.

Who Are Eligible

Any member of the Association, and any dependent member of his family may secure reduced rates. Only one identification certificate is required for each family.

Identification Certificates

Identification certificates will be mailed to every member of the Association about September 1. These will entitle you to the special fare when presented at the local ticket office. Without the identification certificate, a reduced rate cannot be obtained. If, by any chance, you fail to receive your certificate by September 15, and expect to attend the Cleveland meeting, write to the Secretary of the American Public Health Association, 370 Seventh Avenue, New York City, enclosing a self-addressed envelope, and a certificate will be mailed to you at once.

CLEVELAND, THE CONVENTION CITY

Humming with industrial activity; teeming with business enterprise and progressiveness; mindful always of maintaining its proud record of civic accomplishment; ever careful of the health, comfort and recreation of its people and every inhabitant a booster of his city—this is Cleveland.

Probably no city in the United States today outranks Cleveland in the stability of its growth. Approximately one million people live in Cleveland and in its many suburban residential districts. Cleveland proper is the fifth city in the country in population and second to none in the possibilities for future growth and expansion.

This is made possible by Cleveland's exceptional geographical location and the resultant commercial advantages. The city's position upon the shores of Lake Erie midway between rich ore deposits of the Lake Superior region and the vast coal fields of Ohio, Pennsylvania and West Virginia, and close to the extensive limestone quarries of Ohio, make it one of the largest iron and steel centers of the country and this industry forms its leading activity.



Detroit-Superior High Level Bridge

Cleveland has convenient transportation facilities by rail and water and is situated where raw materials may be collected easily and at a low cost. It is the center of a wonderful market of unlimited production and buying power. Its four thousand manufacturing plants have an annual output exceeding $750,000,000 in products.

Cleveland's manufacturing is remarkably diversified, including the production of iron and steel; aluminum, iron, steel and brass castings, bolts and nuts; wire springs, wire fence and wire nails; tools and machine tools; hoisting and conveying machinery, screws and tacks; railroad supplies; stoves for oil, gas and coal; hardware; sewing machines; office furniture and multigraphs; scientific instruments; chemicals; paints and varnishes; oils and greases; automobiles, electric carbons; batteries and other accesories; and steel ships, wire rods, barb wire, piano wires, electric wires, cable and wire ropes are produced in great quantities; while plates, sheets and miscellaneous products go to make up the balance of the big total. Cleveland's part in the automobile industry is not confined to the production of cars. The city leads in the production of automobile parts and accessories. Frames, axles, bearings, fittings of various sorts, bodies, carburetors, crank shafts, motors, wheels, tubings, forgings, stampings and castings for every make of automobile are produced in large quantities.



Cleveland Museum of Art, Wade Park

In 1876, Charles F. Brush, a Cleveland citizen and inventor, gave his first demonstration of his arc lamp in the public square in Cleveland. From Cleveland, too, a mighty influence is exerted upon lighting problems of the world, for here is located the headquarters of the National Electric Lamp Association. Executive offices and the laboratories of this company occupy a beautiful tract of seventy-five acres, known as Nela Park. It contains buildings for administration, research, engineering and operating. It stands forth preëminently as a seat for scientific research work. From the laboratories come reports and testimony at fre-



Municipal Bathhouse, Edgewater Park

quent intervals of innovations, improvements and corrections of electric lighting devices.

Cleveland has 14.2 miles of lake frontage, protected by a breakwater 5¾ miles in length, constructed by the Federal Government at a cost of approximately $6,000,000 with an additional $1,000,000 expended in dredging and maintenance. The harbor has a spacious entrance, and the extension of East 9th St. has made possible the construction of two passenger piers affording ample dockage for passenger and freight service from Detroit and Buffalo. These docks are located east of the harbor entrance, while the harbor to the west affords unexcelled facilities for handling and storage of iron ore. The Cuyahoga River, which is navigable for several miles and flows into Lake Erie at Cleveland, is also lined with docks adjacent to which are many furnaces, factories and lumber yards. Many of these docks are equipped with ore handling buckets having a "grab" of ten, seventeen and twenty tons of ore. An ordinary ore car may be unloaded by three "grabs" of a single bucket.

The largest Lake freight carriers are over 600 feet long and have capacities up to 12,000 tons. More than 800 ships ply the Great Lakes during the seven or eight months the ports are not icebound. In the coal, ore and grain trade, about 450 bulk freight ships are employed, of which approximately 80 per cent are owned or managed by Cleveland firms.

At a special city election the erection of a new Union passenger terminal by the Cleveland Union Terminals Company was authorized. This station, the estimated cost of which is $50,000,000, is planned to occupy the property fronting on the Public Square between Ontario St. and Hotel Cleveland. All roads entering the depot will be electrified. Railroads which have signified their intention of using the proposed station are New York Central lines, the Cleveland, Cincinnati, Chicago and St. Louis R. R., and the New York, Chicago and St. Louis.

The Cleveland Chamber of Commerce enjoys high reputation for its activity and is closely identified with all of the city's important developments and achievements. In addition to its many departments, the following are the principal subsidiary organizations: Bankers Trade and Acceptance Council; Cleveland Automotive Association; Cleveland Housing Company; Convention Board; Cleveland Safety Council; Flour Club; Grain and Hay Exchange; Manufacturers and Wholesale Merchants Board; Military Committee; Retail Coal Dealers Board; Retail Merchants Board.

The remarkable growth and development of Cleveland has never been accelerated by any pronounced boom, but is rather an outcome of a continued and persistent healthy growth, also the result of remarkable expansion and development of its civic, industrial, commercial and financial life.

The original mould in which Cleveland was cast was of the New England pattern. The lands in the northeastern corner of Ohio had been granted by the United States Government to Connecticut, after the Revolu-



Cleveland Y. M. C. A.

tion in the settlement of claims made by the seaboard states to western territory, under old colonial grants. The state sold the larger part of its possessions in Ohio to a group of Connecticut men known as the Connecticut Land Company. In 1796 that corporation sent a party of surveyors headed by General Moses Cleaveland to lay out a town site at the mouth of the Cuyahoga River. The embryo city was named after its chief founder. After the usual hardships and discouragements of settlements in the wilderness, Cleveland began to gather headway about 1830, when its population still numbered 1,076. In 1836 the town was incorporated as a city and the census of 1840 showed that it contained over 6,000 residents. By 1850 the population was 17,000 and from that time the rise of Cleveland was very rapid. The period 1855 to 1860 saw the beginning of manufacturing in Cleveland. Prior to that time shipping and ship building were the principal business activities aside from wholesale and retail merchandising. Since 1860 Cleveland has risen from the rank of fortieth city in population in the United States to fifth city in 1920.



Scene in Rockefeller Park

Cleveland is the fourth city in the U. S. as a financial center. Its choice as the location of the Federal Reserve Bank for the fourth district was made not only because of what it has accomplished, but also because the city bids fair to become increasingly important.

The climate of Cleveland is of the kind which has proved most favorable to the full development of modern civilization. The seasons are strongly marked but the waters of Lake Erie temper the extremes of winter and summer, delay the frosts of autumn and hold back the vegetation in the spring enough to make fruits more dependable than they are a little farther from the shore of the Lake.

These conditions have a favorable influence upon the health of a city long noted for its low death-rate. The natural drainage is excellent and the broad streets are swept by winds which carry away the atmospheric impurities inseparable from the life of large centers of industry and trade. But the remarkable small mortality is also due in part to the exceptionally large proportion of vigorous young men and women who gravitate to so prosperous and attractive a city.

Few cities have been so favored by gifts from their own citizens. The park system which has hardly a rival in America for extent and for the variety of its natural beauty and attractions, is the outgrowth of notable giving by Cleveland men. Parks and boulevards extend in a great chain around the larger part of the city, lacking only a few connecting links to make a complete girdle of green in summer. Gordon Park and Edgewater Park, the latter on the West Side, as the great section west of the Cuyahoga River is called, reserve for the people forever two miles on the lake front and provide bathing beaches, boating facilities and playgrounds swept by cool breezes in summer. There are nine parks with from 85 acres to nearly 300 each and the park system includes numerous smaller parks and many miles of boulevards. Deep ravines, natural waterfalls, fine old forest groves, pretty streams and the shore of a great lake combine to give these pleasure grounds rare charms for lovers of nature.

An aggressive civic step which has attracted world-wide attention to Cleveland is the Group Plan for public buildings. A "T" shaped tract of land approximating 104 acres in the heart of the city, and known as the "Mall" will ultimately contain all of Cleveland's municipal buildings. The Federal Building, costing $3,870,000, the Cuyahoga County Court House, costing $4,500,000, and the City Hall, costing $3,330,000, are already occupied. Appropriations are outstanding for a public library and a Criminal Court building upon the "Mall." The completed project will represent an outlay in excess of $30,000,000. The Public Hall, opened in the Spring of 1922, also located on the "Mall," constitutes another unit of

the "Group Plan." Its auditorium accommodates 12,500 persons, while upwards of 70,000 sq. ft. of floor space is available for exhibits. A permanent city planning commission helps the city toward right decision on proposed reforms, housing, transportation, recreation and other public welfare matters.

In the country, about 8 miles from the center of the city, Cleveland has already created a very different group of public buildings. On a farm of more than 2,000 acres on high land a fine sanitarium for tubercular patients, a home for aged and infirm, with cottages where old couples can spend their last years together, and all the necessary buildings to make such a city farm complete, stand as a monument to the generosity and kindliness of the people of Cleveland. Upon the same tract of land is the municipal house of correction, with ample fields about it for outdoor work and shops for winter employment.

There are few areas of congested population in Cleveland, as the city is noted for the great number of home owners. According to the 1910 Federal census 35 per cent of Cleveland homes were owned by the occupants, being second of the American cities in this respect.

The city's education facilities are notable. In the city system are 110 grade schools, twelve high schools of which three are technical high schools and nine junior high schools. Parochial schools number fifty-seven. Cleveland is the seat of Case School of Applied Science, Western Reserve University (including the College of Women) and of St. Ignatius College. Case offers courses in civil, mechanical, electrical, mining, metallurgical and chemical engineering and physics. Western Reserve has in addition to Adelbert College, schools of medicine, law, dentistry, and pharmacy, and courses in education and applied social science. St. Ignatius confers baccalaureate degrees and gives courses in philosophy, language, literature, history, science and mathematics. The Public Library has forty-six branches and 590 distributors. In gross circulation of books, the Fifth City ranks third in the United States, and in per capita circulation, first.

In Cleveland today are many of the finest retail stores and restaurants in the United States. Merchants in the Euclid Avenue district, as though spurred by the incentive that wide streets and sidewalks and magnificent buildings offer, have striven to outdo one another in making their establishments attain perfection in beauty and artistic decoration. This thought is unconsciously conveyed to the visitor and the result is that Cleveland's shopping district has become nationally famous.

The same idea has been carried out by theatrical enterprises and in 1920 seven elaborate playhouses were erected augmenting Cleveland's previously ample facilities for the amusement of theatre lovers. These playhouses, for the drama, vaudeville and motion pictures, are the last word in architectural design. Four of them are located in the upper section of Euclid Avenue recently occupied by mercantile establishments. These theatres which alone provide more than 11,000 seats, are within the same block, now known as "Playhouse Square."

The map published in this issue will be of assistance in selecting your hotel.

(Illustrations and data by courtesy of the Convention Board, Cleveland Chamber of Commerce.)

Medicine. *Analytical Reviews of General Medicine, Neurology, and Pediatrics. Edited by David L. Edsall, M.D., Harvard Medical School; John Howland, M.D., Johns Hopkins Medical School; associate editor, Paul D. White, M.D., Massachusetts General Hospital.*

This new quarterly is designed to chronicle in important monographs the rapid advances taking place at the present time in medicine in many different countries, thus assisting the busy practitioner or the non-specialist student to keep abreast of the most modern contributions. The first issue (May, 1922) contains two exhaustive studies on "The Therapeutic Use of Digitalis," by Dr. G. Canby Robinson of Vanderbilt University Medical School, and "The Treatment of Meningococcus Meningitis," by Dr. Kenneth D. Blackfan, of Johns Hopkins Hospital. Both are models of scientific form and are an indication of the quality which may be expected from the publication in future. As in the meningitis paper, many of the subjects will probably be on the borderline between the fields of public health and internal medicine.

EDITORIAL SECTION

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NEW EDITIONS OF OLD MASTERPIECES

If we delve into the history of public health, we find much original research of great value and importance. There are many studies which have molded our present-day thought. Out of these investigations and the opinions deduced from them has evolved modern sanitary science. Such work should not be permitted ever to become stale. Some books, as W. T. Sedgwick's classic *Principles of Sanitary Science and the Public Health,* will never be out of date. Science may progress but the fundamental principles laid down do not change materially and the historical background is, obviously, immutable. There are some valuable works of previous years, however, which would be of great service to the present period if they were brought strictly up to date. For instance, the notable *Report on National Vitality* of Irving Fisher, which was issued in 1908, would be of the utmost value if the statistics could be brought up to 1922. The report, which is now difficult to obtain, is still very useful, but a new edition would be extremely so. Likewise, Dr. C. V. Chapin's excellent survey of State Public Health Work, made in 1914 and now out of print, ought to be repeated in 1924 to show the progress of a decade. The U. S. Public Health Service pamphlet on the "Organization, Powers, and Duties of Health Authorities," isued in 1912, would be a reference book to be constantly used if it were brought up to date. One might go on citing other instances of important documents, which, while always estimable, have now reached the stage where another edition is necessary. To keep such works fresh and current should be the duty of those responsible for their original publication. Thus would they foster the cause of sanitary science and contribute to the advancement of public health.

J. A. T.

THE ORGANIZATION OF PUBLIC HEALTH NURSING

More and more it is becoming clear to students of organization that the part local public-health nurses play in the promotion of the health program of the state depends largely on the existence and influence of a state director of public-health nursing. In those fortunate states where an experienced public-health nurse is in charge of a state bureau of public-health nursing, which, by virtue of its equal rank with other bureaus, is able to share in the promotion of their programs, we find the public-health nurses and the agencies employing them throughout the state recognizing the leadership of the state department of health and considering themselves units in the state plan and participants in the state program. The state director of public-health nursing, though usually without controlling power over local agencies, exercises very often a strong, helpful and unifying influence over the development of public-health nursing all over the state and secures the coöperation of local nurses in large measure in the state program.

The importance of this single leadership of local public-health nurses by a state public-health nurse, whose qualifications and experience are such as to command their confidence and respect, cannot be overestimated if the state has a definite program for the development of health work in the performance of which it believes local public-health nurses have an important share.

There are other good reasons for the maintenance of a bureau of public-health nursing of equal rank with other bureaus in the state department of health. These have been pointed out by Dr. Allen Freeman in the March issue of the *Public Health Nurse*, and by Miss Rose Ehrenfeld in the March issue of the AMERICAN JOURNAL OF PUBLIC HEALTH. Dr. Robert Paterson in his article in the August issue of the AMERICAN JOURNAL OF PUBLIC HEALTH reaches the same conclusion by a somewhat different line of reasoning.

The writer of these brief paragraphs does not want to reiterate any of the arguments which are presented and sufficiently supported by these authors, but desires only to focus the attention of those who are interested in this problem of organization on the need of the local public-health nurse for and her response to state leadership, and to assert that effective leadership of public-health nursing can only be had when the state concentrates responsibility for its development in one person and gives her a position which enables her to exercise the leadership for which she is held responsible.

ELIZABETH G. FOX, R. N.

OF INTEREST TO SANITARY ENGINEERS

The JOURNAL takes pleasure in announcing that Mr. Mayo Tolman, formerly a member of its staff of editorial assistants, will again be a regular contributor to the notes section, and will cover current literature of sanitary engineering. Mr. Tolman's experience in practical engineering work for the United States Public Health Service, and in state departments of health, is a guarantee of his competence to conduct a valuable abstract service in this field. He is at present in charge of a research for the National Industrial Conference Board.

A PERNICIOUS TENDENCY IN STATE GOVERNMENT

A distinct menace to efficient state health administration is found in the tendency to make executive heads of state health departments appointable and removable without restriction by the governors of states. Illinois in 1917 adopted this policy, and more recently Ohio has followed suit.

The avowed purpose of the reorganization has been to secure greater efficiency and economy. It is stated that the executive head of the state in order really to be the executive head should have the right to select subordinate officers who will carry out his policies. There is just enough plausibility to this argument to make it dangerous, for the recommended method is that which is followed with success by business corporations in which control is centralized in the general manager. If executive heads of states were selected and retained with the same intelligence as executive heads of corporations, and if governors could, and would, exercise their powers as sanely as the heads of corporations, the new plan of state administration would certainly be the sensible one. Unfortunately, however, the body politic is not at all comparable to a business corporation, so that administration methods that will work with one will not work with the other. In many states the governor holds office for only two years, and he is subject to great political pressure, so that to give him a free hand to appoint and remove department heads is simply opening the door to the old spoils system. In many states the result will be that even where capable department heads are selected, they will be rotated in office so often that they cannot possibly carry out a constructive program of work.

In both Ohio and Illinois the new regime was promptly followed by changes in the state health officerships. Is there any guarantee that under the new order such changes will not continue with each change of administration? This editorial is in no sense a reflection upon the new men who have assumed office in these situations. They are entitled to high regard and if permitted to remain in office will undoubtedly give good service. Whatever they will accomplish, however, will be in spite of the new laws and not because of them.

The principle of making departmental administration subject to the whim of politically elected governors is fundamentally unsound. Efficient departmental administration rests upon two important factors; first intelligent selection of the department head based upon technical qualifications and general fitness for service, and second, continuity of office so long as efficient service is rendered. The new plan threatens to defeat both of these requirements.

Of all public institutions, the educational systems have been the most efficiently managed and that because they have been protected from spoils politicians. Health departments require the same protection, and health officers should be appointed on the same non-partisan basis and should hold office during faithful service without regard to political changes.

BEFORE SCHOOL BEGINS

Last call for summer vacations before the public schools open again to receive the hosts of American children, brings to mind the fact that summer is the best time of the year for children to be brought to their highest peak of physical fitness. The vacation time should naturally do this, but it is also the best opportunity to correct minor physical defects in children. Adenoids, enlarged and diseased tonsils, bad teeth, etc. should be attended to now, as Dr. Olin, of

Michigan suggests. Parents who allow the vacation to pass without attending to the defects that can be corrected, and then take the children out of classes during the school year, are making a serious mistake. Children easily become discouraged when they are unable to keep up in their school work on account of illness or minor operations, and when they see their classmates forging ahead, they may, all too readily, fall into the "I don't care" attitude. Such defects, if allowed to go uncorrected, may poison their systems and keep them far below their best efficiency. A good final warning to parents is: Take your child to a doctor now and save time.

AMENDMENTS TO THE CONSTITUTION

Notice is hereby given that the following amendments to the Constitution of the Association will be considered by the Governing Council at the Cleveland meeting:

AMENDMENT NO. I

Article III of the Constitution shall be changed to read as follows:

Governing Council

COMPOSITION—There shall be a Governing Council consisting of:

1. The officers of the Association.

2. Thirty members of the Council,, to be elected with due regard to geographical and membership considerations, by and from the membership of the Association, for three-year terms, one-third retiring each year.

(At the 1922 Annual Meeting, ten members shall be elected to replace the fifteen outgoing Councilors, and this procedure shall be repeated at the 1923 and 1924 Annual Meetings.)

3. The Chairman, Vice-Chairman and Secretary of each Section.

4. A representative to be appointed by the governing body of each affiliated state health society, to serve for one year on the Governing Council.

Note—The changes involved in the foregoing amendments are the following:

a. In A2 the elective Councilors are reduced from 45 to 30 in number. This is to compensate for the increase under A3.

b. In A3 the number of section representatives is increased from one to three per section.

c. In A4 the expression "affiliated society" is changed to "affiliated state health society."

AMENDMENT NO. II

Section E2 in Article III shall be changed to read as follows:

E. FUNCTIONS: The functions of the Governing Council shall be:

* * * *

2. To establish Sections of the Association, **to combine or discontinue them when necessary,** to maintain coördination among them, **and to formulate rules governing the policies of Sections.**

Note.—The **bold type** portions have been added to the original article.

AMENDMENT NO. III

After Section F, under Article III, the following shall be added:

G. MEETINGS of the Council shall be called by the Executive Secretary at the request of the President, or at the request in writing of any twelve Councilors. In the latter case the call to meeting, issued at least twenty days in advance, shall state the purpose of the meeting.

This notice is published in order to comply with the Constitutional provision that thirty days notice be given of all proposed changes in the Constitution.

The Committee on Reorganization will also propose amendments to the By-Laws, but these changes cannot be given in advance of another meeting of the Committee. Advantage will be taken, therefore, of the provision that notice of change in the By-Laws need not be sent to the Governing Council earlier than fifteen days before the Annual Meeting.

ASSOCIATION NEWS

LIST OF NEW MEMBERS

Proposed for election to the A. P. H. July 1 to July 31, inclusive.

Names of Sponsors are set in **Bold Face Type.**

Names of New Members are set in Light Face Type.

CALIFORNIA

D. O. Jordan, M. D., Chicago, Ill.

Albert G. Bower, A. B., M. S., M. D., Hanford, Calif., Part-Time City Health Officer.

CANADA

M. M. Seymour, M. D., Regina, Canada.

Hon. J. M. Uhrich, M. D., Minister in Charge Bureau of Public Health.

MASSACHUSETTS

Paul Eaton, M. D., Quar. Sta., Gallops Island, Boston, Mass.

John A. Ceconi, M. D., Dept. of Health, Boss., Mass., Medical Director.

Wm. B. Keeler, M. D., Dept. of Health, Boston, Mass., Medical Inspector.

Louis P. Verde, M. D., Dept. of Health, Boston, Mass., Medical Inspector.

MEXICO

A. Brioso Vasconcelos, M. D., Mexico City, Mexico.

Fernando Ocaranza, M. D., 2 a San Juan de Letran, No. 19 Mexico, D. F., Surgeon.

NEW MEXICO

George S. Luckett, M. D., Santa Fe, N. M.

Edgar B. Bearer, M. D., Los Lunas, N. M., County Health Officer (full time).

NEW YORK

Mr. A. W. Hedrich, New York, N. Y.

Mr. Walter Clarke, National Health Council, 370 Seventh Ave., New York, N. Y.

TEXAS

A. J. McLaughlin, M. D., Washington, D. C.

Wilson T. Davidson, M. D., Dallas, Texas, Director of Public Health.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 8th of each month for publication on the 20th. Mail to New York office as early as possible.

In answering keyed advertisement, please mail replies separately to editorial office in New York City. In replying give age, professional training, salary requirements, previous positions held and three or more references.

Wanted: Full-time health officer for progressive southern city, 12,000 inhabitants, railroad center, farming country, no industrial establishments. Good salary and two weeks yearly vacation with full pay. Address 493 C. C. C., care of this JOURNAL, New York address.

Wanted: Physician with experience in public-health activities to fill position as assistant to health officer in a southern city with well organized health department. Young man preferred. Duties chiefly those of school physician and physician to the indigent. Salary $2,500 to $3,000, depending on experience and capability. Address 494 M. X., care of this JOURNAL, New York address.

Wanted: Technician in the laboratory of this department. Character of work: bacteriology, milk and water analysis, and chemical examination of foods for preservation. Address Board of Health, Perth Amboy, N. J.

Wanted: Statistician for responsible position in national child-health work. Apply Child Health Committee, 532 Seventeenth Street, Northwest, Washington, D. C.

POSITIONS WANTED

Positions wanted announcements will be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 8th of the month.

Wanted: Public-health work by recent graduate of public-health school S. B. in biology and public health, Mass Institute of Technology, C. P. H. in Harvard Technology School. Fourteen months' experience in public-health administrative work. Address A. B. 218, care of this JOURNAL, New York.

Wanted: Veterinarian, graduate Ohio State University. Experienced food and dairy inspector open for engagement September 1. Seven years' experience in food, milk and meat inspection, including laboratory examination. Formerly inspector in charge of market and milk for State of Georgia. At present engaged in California. Will consider any location. References from state and city officials. Address 222 L. A. B., Box 963, Fresno, Cal.

Wanted: Physician, aged 38, with three years' experience with U. S. P. H. S. in city and county-health work, would like position of full-time city or county health officer. Minimum salary, $2,400 per year. Address K. R. G. 221, care of this JOURNAL, New York address.

Wanted: Position in north as bacteriologist. Young woman with experience in public-health laboratory work. Minimum salary $2,000. References and full history of training and experience furnished on application. Address 224-27, care of this JOURNAL, New York address.

Wanted: Position as director of general or research laboratory or member of medical group, is desired by physician who has, for a number of years, directed important government laboratories. Address 223 X, care of this JOURNAL, New York address.

Wanted: Physician, Harvard M. D. and C. P. H., with eight years experience in every branch of public-health work, wishes position as life insurance examiner, bacteriologist, vital statistician, college physician, child hygiene worker or city health officer. Minimum salary, $3,000. Address Dr. W. L. Holt, 1718 Cornell Ave., Knoxville, Tenn.

Wanted: Position as bacteriologist or health officer in city or state health department by physician, graduate of Harvard Massachusetts Institute of Technology, School of Public Health. Six years experience in public-health work—last four years as director of laboratory for large city. Thoroughly trained and experienced in all branches of public-health work. Can do pathological work. Excellent references. Married. Salary desired not less than $3,000 per year. East or South preferred but will go anywhere. Available immediately. Address 225 G., care of this Journal, New York address.

Wanted: Position by young woman technician with M. S. degree (Michigan), one year of municipal laboratory experience, and one year of post-graduate work in bacteriology, histology, serology, blood chemistry and clinical miscroscopy. Well trained in the technique of lytic principle investigation. Opportunity for some research work also desired. Available in September; salary, $1,800. Address 226 F. P., care of this Journal, New York address, or Dr. Philip Hadley, College of Medicine, University of Michigan.

Wanted: Position as chemist and bacteriologist in a publichealth laboratory, health officer, or a combination position. Thoroughly trained in food chemistry and chemical and bacteriological control of water purification. Nine years experience in public-health laboratory. Graduate with an M. S. degree in public health. Also two years experience as health and sanitation officer. Will accept a position in the South or West. Address 227 C. S. L., care of this Journal, New York address.

Wanted: Laboratory director. Man, with experience in city and state laboratories who for past four years has successfully directed laboratory of large city, desires a position where knowledge and executive ability will be of service. Hold A. M. degree and have done some teaching in middle western university. Address 228 C. B., care of this JOURNAL, New York address.

BOOKS AND REPORTS REVIEWED

Nutrition and Specific Therapy. *Dorothy E. Lane, The Macmillan Company,* 1912. *Pp.* 185. *Price* $1.50.

The scope of this little book on nutrition can best be appreciated by the following titles of its chapters:

1. Explanation of the Subject of Nutrition.
2. Food Preparation
   Raw Foods and Effects of Cooking Upon Foods and Conclusions.
3. Meat or Mixed Diet versus Vegetarian or Lacto-Vegetarian Diet.
4. Auto-Intoxication.
5. Bacteriology of the Digestive Tract.
6. Reforming the Intestinal Flora.
7. Diet in the Common Diseases.
8. Infants' Diets; Children's Diets.
9. Vitamines.
10. A Few Healthful Recipes; Some Invalid Recipes.
    Miscellaneous subjects.

The term "Specific Therapy" in the title refers to dietetic therapy and not to pharmacologic therapy. The author is evidently well acquainted with both the literature of this subject and the clinical application of dietetics, and has endeavored to include these two aspects in this short treatise As far as such a broad aim can be accomplished in such small compass, the result has been successful. To our knowledge, there is no work of less than 200 pages which includes so much of the theory and practice of nutrition in dietetics. It should therefore be of value to the rapidly increasing number of workers who are actively interested in this field.

The main criticism of the work is incidental to the large field which it endeavors to cover. It may be questioned whether it is worth while to attempt to prescribe in paragraphs covering less than one page, the diets of complex disorders, such as kidney disease, gout, infantile diarrhea, eczema, and many other diseases. The work as a whole, however, fills a need, and is to be commended.

ALFRED E. HESS, M.D.

The Newer Knowledge of Nutrition. *E. V. McCollum, Ph.D., Sc.D. New York: The Macmillan Co.,* 1922. *(2nd ed. Rev.) Pp. xviii* +449. *Price* $3.80.

The first edition of this volume has been almost entirely rewritten and greatly enlarged to bring the subject matter up to date and to present in fuller detail the historical background for "the newer knowledge of nutrition." As in the earlier edition, the emphasis is placed on the author's contributions in this field, while the earlier and contemporary work of others is discussed and interpreted in the light of his experience. The personal bias thus introduced, while making interesting reading, gives the impression of a record of personal achievement rather than a well-rounded and impartial survey of the many contributions from different sources which helped to build up our present conception of nutritional requirements.

The first five chapters are more or less historical, the attempt being made to review the earlier work on nutrition and to show the steps leading up to the present biological methods of analyzing foods. In this section occasion is taken to criticize much of the earlier work of Osborne and Mendel on the nutritive value of proteins in which protein-free milk was used as one of the constituents of the basal ration. Inasmuch as Osborne and Mendel in their later publications explained fully the part which protein-free milk played in their earlier work, this criticism would seem rather unnecessary.

With the criteria for estimating the nutritive value of foods established, an interesting chapter on the dietary properties of individual food-stuffs and one on the vegetarian diet follow, after which, under the general heading, "The Dietary Deficiency Diseases," separate chapters are devoted to scurvy and beriberi. These would thus seem to constitute the only deficiency diseases, although in later chapters xerophthalmia, rickets, and pellagra are also discussed in their relation to dietary deficiency.

The chapter on scurvy is interesting in showing how completely the author's viewpoint has changed since the first edition to conform with the earlier conclusions of Holst and Frölich. The chapter on beriberi includes an interesting discussion of the possible relationship between epidemic dropsy, war edema and wet beriberi, and that on xerophthalmia discusses the possible association of hemeralopia and nyctalobia, or night-blindness, with lack of vitamin A.

The chapter on rickets consists largely of a discussion of the experimental work in the author's laboratory on the relation of calcium, phosphorus, and other factors to this condition. A tendency to misinterpret the work of others is to be seen in the discussion of Sherman and Pappenheimer's paper in which was first reported the prevention of rickets in rats by the administration of a phosphate. These investigators state in the conclusion of their first report that the prevention of rickets by the addition of potassium phosphate to the basal ration "does not imply that in these cases the cause of rickets was necessarily a deficiency either of potassium or phosphorus. The quantitative relations of the inorganic ions, rather than an absolute deficiency of any one of them may have been the determining factor." In spite of this clear statement, McCollum in referring to this paper, states, "Their data would lead one to the conclusion that the disease is brought about by phosphorus starvation," and continues, "Instead of lack of phosphorus *per se* being the cause of the rickets in their animals, McCollum, Simmonds, Shipley and Park regard the cause as due to an unfavorable ratio between calcium and phosphorus in the absence of sufficient of the organic factor which plays a rôle in the production of this syndrome."

Separate chapters are devoted to the chemical properties of vitamins A and B, but a similar treatment of vitamin C is confined to brief mention of some of the earlier studies on its stability. With the emphasis that is placed on technique throughout the book, it is unfortunate that the technique for the quantitative determination of vitamin C developed by Sherman, LaMer and Campbell, and their study of the stability of this vitamin should not be included.

The most interesting parts of the book are the closing chapters in which the author discusses the dietary habits of peoples in different parts of the world in their correlation with the results of animal experimentation, and outlines his views on the essentials of an adequate diet. A simple rule to follow is embodied in the sentence "It must suffice here to say that aside from the liberal use of milk in the many ways in which it can enter into the diet without in any way disturbing our established food habits, the desired end is to be attained through the daily consumption of the vegetables we class as greens or pot-herbs and through the practice of eating salad dishes twice a day."

The book is abundantly illustrated and many references to the original literature are given at the end of each chapter.

S. L. SMITH.

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Mentally Deficient Children, Their Treatment and Training. *G. E. Shuttleworth, G.E., B.A., M.D., and W. A. Potts, M.A., M.D., Philadelphia: P. Blakiston's Sons & Co. (fifth edition),* 1922. *Pp.* 317.

The aim of this volume is to provide the medical profession and others concerned with the handling of mentally defective children with a ready handbook of information and points of view. It is copiously illustrated and as nearly up to date in its material as we should expect from British authors, who are not thoroughly acquainted with the present status of investigations by American psychologists.

Several matters relating to problems of public health are emphasized, for example, urgent advocacy of prohibition by legislation of all proprietary medicines containing morphia and other narcotics used with infants. Parents often attribute cases of mental deficiency to convulsions during dentition. As a matter of fact, the authors assert there is no clear distinction between infantile convulsions and epilepsy. Most children who have them while teething are of neurotic heredity, if not epileptic. The conviction that epilepsy is essentially toxic in origin is here held, so large a percentage of cases having been found to have thyroid affections.

Attacks of smallpox, malaria, and other infectious fevers in the mother shortly before conception may have serious effects on the mental capacity of the offspring, and toxins during pregnancy produce effects inversely proportional to the mother's powers of destroying them. Some infections are more dangerous than others from this standpoint, and none can be disregarded. Again, caution is necessary in accepting statements of parents that their children's mental deficiencies date from attacks of whooping cough, scarlet fever, measles, etc. Whatever contagious disease he may acquire, probably no child becomes feeble-minded after the age of four or five, when the brain reaches almost its full weight. However, feeble-mindedness is significant in furnishing ready susceptibility to contagion because of its accompanying general physical subnormality. Also, a marked predisposition to tuberculosis is known.

Persistent defects of nutrition, in spite of good feeding, are symptomatic of defect of original constitution and are not infrequently associated with mental deficiency. But injudicious feeding, especially lack of vitamines, may have deleterious effect on mental growth. With improved health conditions through proper nutrition and prevention of epidemics, some forms of mental deficiency may be substantially diminished, and in turn a condition conducive to contagious diseases be reduced.

MIRIAM C. GOULD.

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The Vitamines. *H. C. Sherman and S. L. Smith. The Chemical Catalogue Co., Inc., 1922, Pp. 273.*

This is one of a series of scientific and technologic monographs on chemical subjects to be published by the American Chemical Society. The object of this monograph is to present the available knowledge in a readable form, and, secondly, to furnish a well-digested survey of the progress already made in the field and to point out the direction in which investigation needs to be extended. From this point of view this volume on vitamines must be regarded as a distinct success.

It covers consideration of the three well-established vitamines, with a general chapter on the vitamines in relation to the problem of the food supply. In addition there is a carefully selected biography of about one thousand titles and a carefully prepared index to authors and to subjects. The material is well summarized, and treated in a thoroughly judicial manner which is rather exceptional in recent treatises dealing with the vitamines.

The book can be unqualifiedly recommended both to those who are actively engaged in this field, and to others who have a general interest in this subject and wish to ascertain just how much of the recent work on vitamines is founded on theory and how much rests on reliable experimental investigation. It is a very timely volume and will, no doubt, be welcomed by many readers.

ALFRED F. HESS, M.D.

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Man, the Animal. *Dr. William Martin Smallwood. New York: The Macmillan Co. 1922. Pp. 223. Price $2.50.*

It may be true that "preachers, nurses and social workers in America" have long desired the sort of popular science which this book offers to them and to the general reader, without knowing where to find it; but it may be questioned whether this rather confused effort is the best medium for the purpose.

The book is readable enough, and covers a wide range of interesting and important topics on the biological aspects of human affairs and problems, including reproduction, heredity, the nervous system and learning, metabolism and the characteristics of protoplasm. The application of biological principles to problems of health receives a whole chapter, which suffers from certain obscurities in statement and carelessness as to details, as well as from the apparent effort to be impressive. The causes of "all the greatest catastrophies, whether geologic or modern," have been due to the action of microscopic parasites. The limitations of public-health measures are found in the natural immunity, which is derived from the inherited constitution; but the specific nature of this natural immunity is obscured by the statement that the constitutionally weak, when "infected with germ diseases," will probably succumb, "irrespective of sanitary conditions and hygienic living." On the other hand, "all living things may recover

from every form of germ disease to which they are subject—none is necessarily fatal." And the author doubts whether the general immunity of mankind will improve with increasing urbanization, since "the development of rugged constitutions requires vigorous exercise and plenty of fresh air."

There is great need for explaining to the lay reader just what we understand of the mechanism of blood reactions, and the general theory of serum-therapy. But although the author talks around the subject for several pages, he does not add to the illumination. The chief defects seem to lie first in an excessive cautiousness which emphasizes the ultimate limitations of human power to solve our problems, rather than the limitations of our present knowledge; and second, in a certain concession to prevalent anthropomorphism and mysticism, which results in the personification of Nature and speculation concerning her schemes and purposes, and in an emotional tension that is hardly in keeping with the methods and purposes of science.

BENJAMIN C. GRUENBERG, PH.D.

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Taking It on High. *Dr. R. R. Daniels and Bertrand Lyon. Bobbs-Merrill Company,* 1921. *Pp.* 375.

Realizing that abstract conceptions of health are of little interest to laymen, the authors of this book seek to capitalize the prevailing widespread interest in the mechanics and operation of the automobile. They do this by comparing the human body to a motor car, pointing out analogies between certain mechanical principles of the auto and physiological processes of the body. How to tune up and maintain the human mechanism in 100 per cent efficiency is told in entertaining, picturesque language embellished with anecdotes and recitals of interesting personal experiences.

Particular stress is laid on diet and nutrition. Food is the fuel of the human machine and upon its character and the quantity ingested depends more than on any other factor the efficiency of the machine. "Don't commit suicide with your knife and fork," they warn, and then advise their readers as to what foods to select and how to prepare them. After condemning the old rule of following the appetite, they ask, "Is it any wonder that our death-rate during the prime of life is doubling?" Of such loose unscientific statements there are a number, which, since they are directed to the lay reader may conceivably cause mischief by giving rise to harmful misconceptions. To say, for instance, "When you are sick don't eat," emphasizing the statement in italics, is playing directly into the hands of the medical cults. Nor does it seem fair, in condemning the use of coffee, to imply that the increase in recent years of Bright's disease is due to a corresponding increase in the amount of coffee consumed in the United States; and the repetition of the old physiological axiom, long since discredited, that the body tissues are completely renewed every seven years, tempts the critical reader to question many other statements which have a similar flavor of finality and dogma.

Considered as a whole *Taking It on High* is calculated to make a popular appeal for better health and body efficiency and is therefore a distinct contribution to the cause of health betterment. But the reader should be warned to make due allowance for inaccuracies and questionable statements which have crept in largely, it would seem, because of the enthusiasm of the authors for certain of their ideas.

H. E. KLEINSCHMIDT, M.D.

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The Principles of Bacteriology. *A. C. Abbott, M.D. Philadelphia: Lea and Febiger, 10th edition, revised* 1921. *Pp.* 686. *Price* $4.00.

This well-known text-book retains its characteristic of a typical student's guide in bacteriology. A few new discussions dealing with advances made during the last few years have been incorporated, such as the work on the pathogenic spirochetes. A few illustrations have likewise been added. It would have seemed advisable to omit from the illustrations some of the antiquated types of sterilizers and to substitute or add illustrations of the Boston Board of Health type of the Arnold sterilizer and the horizontal chamber type of autoclave, both of which are so extensively used in modern laboratories. The merits of the book are firmly established and need not be enlarged upon. The fact that it now appears in its tenth edition speaks for itself.

ARTHUR LEDERER, M.D.

PUBLIC HEALTH NOTES

Abstracted by D. Greene, M. D., James A. Tobey, Homer N. Calver, and Mayo Tolman.

Child Health Education at Lake Mohonk.—Although much is being done for the health education of children, many of the basic principles of this branch of health work have not yet been clearly defined. With the purpose therefore of assembling experiences and clarifying thought, the United States Bureau of Education, together with the Child Health Organization, called a conference to discuss health education and the preparation of teachers. This conference took place at Lake Mohonk, New York, June 26 to July 1. Leaders in both health and educational fields addressed the meeting, but discussions from the floor occupied, by design, the greater portion of the time. The conclusions of the conference, therefore, are based on the experience of many workers. The program committee, of which Professor C.-E. A. Winslow was chairman, presented topics of the conference under five heads: 1. Subject matter in health education. 2. The place of health education in the curriculum. 3. Incentives and motives in health education. 4. The preparation of teachers in health education. 5. The promotion of health habits—successes and failures.

As a working basis for the conference it was accepted that children in large numbers could be reached most effectively through the schools, and therefore the recommendations of the conference deal with the two major topics of the preparation of teachers for health teaching and the nature and content of the health material for children in the various grades. It was also assumed that that teacher is best equipped who has herself an individual and personal knowledge of healthy well-being. A student health service and healthful surroundings for teachers in training schools are therefore the first recommendations made. Suggestions follow as to the fields from which subject matter should be derived in preparing teachers for health education.

The conclusions of the conference imply that they will include all teachers of children, for it is stated that health teaching should permeate the whole school curriculum. Varying emphasis, however, should be placed on different phases of health teaching in the various grades, and the conference suggests, therefore, as a desirable trend for a plan of health education in the schools that in the primary grades chief emphasis should be placed on habit formation. In the intermediate grades the phases of health work should be more broadly biological and should convey a conception of the functioning of the body as a whole, although the content in the grades should still be correlated with health habits and practice. In the junior and senior high schools, while continuing the effort to fix the habits and broaden the knowledge indicated for previous grades, problems arising from group activities offered in school, home and community should be stressed. It may seem to some health officers that the recommendations of this conference do not take sufficiently into account the relation between health education in the class room and the experience the children undergo in the course of medical inspection and examination. The conference marks a distinct forward step inasmuch as it has set forth simply and concretely the fundamentals of many ideas that those interested in health and education have been considering for some time.—(*H. N. C.*)

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The A. P. H. A. Mentioned in Congress.—In the *Congressional Record* for July 18, 1922, on page 11276, appears a speech by the Honorable Lester D. Volk, of New York, on "The Necessity for Narcotic Drug Investigation." Mr. Volk quotes from resolutions of the American Medical Association and the American Therapeutic Society, and then continues as follows:

"Mr. Speaker, great as are the two learned professional societies whose solemn resolutions I have cited, there remains another and equally great aggregation of scientific savants whose lives have been given up to a study of problems peculiarly related to conditions fostered by our modern complex lives, especially in our great cities, where particularly exist the rings of drug peddlers and sanitarium interests preying on the

addict. This body is the American Public Health Association, comprised of the health officers and students of health subjects from every quarter of North and South America.

"On October 19, 1921, Commissioner Haynes promulgated his interesting views on the subject of narcotics. On Nov. 17, 1921, this body, meeting in annual convention in New York, and reviewing the work of and effects of narcotic regulations, anticipated the resolution of investigation, No. 258, which I introduced before this body last January by adopting a resolution calling for a scientific investigation of the moot subject under discussion.

"Similar position had been taken by this body for three years previous at its annual meetings and was the result of long and exhaustive investigation by special committees apointed to study various phases and problems of narcotics and addiction and of yearly open discussion of this subject.

"The resolution adopted by the American Public Health Association in 1921 was sponsored by Dr. Peter H. Bryce, an internationally known health and scientific authority."

Representative Volk is a medical graduate and also a lawyer. He is a Republican from Brooklyn, N. Y.—(*J. A. T.*)

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Report on Public Health Institutes.—During the winter and spring of 1922 sixteen public-health institutes were held in various cities under the auspices of state health departments and the United States Public Health Service. The American Public Health Association also conducted an institute the week preceding its Fiftieth Annual Convention in New York City last November. The total registration at the sixteen institutes was 6,254, an average of nearly 400 for each. The largest attendance was at Chicago, with 1,001 registrants, the smallest at New Orleans, with 105. The registration by occupation at thirteen of the institutes showed more nurses and social workers than any other group. They numbered 1,907, while physicians were second with 1,718. There were 238 students, 107 teachers and clergymen, 69 sanitary engineers, 46 judges and court officials, and 2,169 unclassified. The institutes were reported to have been generally very successful and of much value to sanitarians in the various localities.—*U. S. Pubic Health Reports,* June 30, 1922. (*J. A. T.*)

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Vaccination Regulations Upheld in Washington.—The *U. S. Public Health Reports* for June 30, 1922, contains an opinion of the Supreme Court of the State of Washington. This decision held that the vaccination regulations of the State Board of Health, by which children not vaccinated were excluded from school, were entirely valid. The facts in the case were that a child was so excluded, even though she was not a disease carrier nor did she have smallpox. The facts were admitted, as the case was argued on demurrer. The court examined the statutes creating the State Board of Health and the powers given by them and concluded that the Board acted properly in this case under the law. A previous decision of the same court was cited, in which it was held that "the finding of a fact by a properly constituted health officer was final and binding upon the public as well as upon the courts." Thus it added another support to the cause of public health, one which the anti-vaccinationists can mull over for a while.—State ex rel. Lehman vs. Partlow et al., 205 Pac. 420. (*J. A. T.*)

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Rural Health Service in U. S—Of the 3,065 counties in the United States, only 203 have rural health service under the direction of a whole-time health officer. Progress is shown, however, by the fact that there was an increase of 52 such county organizations in 1920 over the previous year, and an increase in 1921 of 42. The small number of counties having adequate health service is viewed as "a national calamity" by Dr. L. L. Lumsden, who contributes an article on the subject to the *Public Health Reports* for July 21, 1922. Included here is a complete list by states of counties or districts having local health service during 1920, 1921 and 1922 respectively.—(*J. A. T.*)

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Milk-Borne Epidemic of Typhoid Fever at Fort McPherson, Ga.—An account is given of an epidemic of typhoid fever in the summer of 1921 among the patrons of a certain dairy, which supplied milk to a part of the families living at the army post

at Fort McPherson. A tabulation of data pertaining to the families using milk from this dairy is given, showing: the amount of milk used, individuals in family, age, date of last typhoid inoculation and the typhoid cases.

The important points brought out in this article are: (1) The unusually low total bacterial count of this milk, averaging between 2,000 and 5,000 bacteria per c.c., which is about one-half that of the pasteurized milk normally furnished at Fort McPherson; (2) the importance of sanitary control of dairies, including medical inspection of the milkers, those handling milk and their families; (3) the low incidence of typhoid among those inoculated. Eighty-eight per cent of cases occurred in uninoculated individuals.—Major A. T. Cooper, Major N. F. Curtis and Major R. Skelton, Medical Corps, U. S. Army, Military Surgeon, Vol. 50, No. 3, March, 1922, Pp. 283-94.—*U. S. Public Health Engineering Abstracts,* July 29, 1922.

✣

Venereal Diseases in Eastern Europe.—Venereal diseases have increased in Europe, as is usual following war. What is not so usual, however, is that a public sentiment against them has developed. There is unfortunately a lack of drugs and of physicians, so that progress against the diseases is hampered. Rumania, Bulgaria and the Baltic states are particularly short of doctors. Turkey has no medical facilities at all to treat venereal disease. In Jugo-Slavia and Czecho-Slovakia some progress is being made, and in these countries popular health instruction is well developed. The work of Professor S. M. Gunn, former secretary of the American Public Health Association, who has been expert health advisor in Czecho-Slovakia, has had much beneficial influence, and together with efforts of other leaders has given this country an advanced standing. The greatest need in all the nations is funds, a condition which is not unusual anywhere. As it is, however, the flame is being kept alive and the governments of Eastern Europe are beginning to recognize the importance of coping with these insidious maladies. In spite of their impoverishment, what they are doing compares favorably with the activities of Western European states.—Walter Clarke in the *Journal of Social Hygiene,* July, 1922. (*J. A. T.*)

Maternity Center Association Issues 1,200,000 Messages to Expectant Mothers.—The Maternity Center Association of New York, an authority on matters of maternity protection, announces its publication of a series of twelve "Talks to Mothers" for the benefit of women in all parts of the country. It is the first attempt of the kind in the United States to undertake, on a national scale, to impress women with the vital importance of complete maternity care.

It has been said that more women between the ages of fifteen and forty-five die from causes incident to maternity than from any other cause except tuberculosis. The majority of these deaths are due to ignorance—to the fact that the mothers didn't known that care is necessary if their lives and the lives of their babies are to be protected. It is the function of the new publications to dispel that ignorance—to convince mothers that they must seek proper medical and nursing care.

It is planned to distribute the pamphlets to a great extent through nursing and public-health organizations which are closely in touch with local conditions in their own communities. Expectant mothers will be encouraged to present their cases to those institutions and receive personal advice and direction.

The burden of the message is that the woman should see her doctor or nurse as soon as she knows she is going to have a baby and remain under their care until her final examination, six weeks after the baby is born.

These pamphlets may be secured in quantities at low prices from the Maternity Center Association, 370 Seventh Avenue, New York City.

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The Popular Bogey of High Blood Pressure.—It is generally not appreciated that high blood pressure is a symptom, not a disease, and it may be a favorable reaction through which is made possible the maintenance of the proper function of the organism. It has not been many years since the blood pressure machine was introduced into this country, but those years have been filled with concentrated attention to blood pressure such as must astound the thoughtful person who realizes how well the world got

along without apparatus for measuring the blood pressure. What is commonly spoken of as blood pressure, is really an increase in the blood pressure. The range of normal blood pressure has not been definitely ascertained, though the popular rule is to add 100 to one's age. Excitement and anxiety may raise the blood pressure many points, and a period of calm will reduce it to normal. Many persons in perfect health run high blood pressure of which they are not even aware.

Changes in blood pressure are not entirely understood even by those who have devoted considerable time to this study. The dangers to the individual are frequently those due to autosuggestion. The amount of thought and attention which a non-medical person gives to his own case of blood pressure is distinctly harmful to his own condition. It is unwise to make the presence of a mere symptom the basis for a course of rigid treatment which may actually confirm a vicious circle and do the individual more harm than good.—*The Nation's Health*, May 15, 1922, Pp. 262-3.

✣

National Association of Practical Refrigerating Engineers.—The Thirteenth Annual Convention and Exhibition of the National Association of Practical Refrigerating Engineers will be held Nov. 1, 2, 3 and 4, 1922, at the Planters Hotel in St. Louis. The National Association of Practical Refrigerating Engineers is an association composed of chief and operating refrigerating engineers, for the purpose of further educating the members of the profession in the art and science of refrigeration engineering.

The National Educational and Examining Board of the Association, after much labor, several months ago commenced to furnish the members with a lecture course on the fundamental principles of refrigeration. The lecture course is in twenty-two parts and is conceded to be the most complete of anything ever written on the subject.

Further particulars may be obtained from Edward H. Fox, secretary, 5707 West Lake Street, Chicago, Ill.

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The International Health Board of the Rockefeller Foundation has entered into a coöperative arrangement with the Health Organization of the League of Nations whereby the Board will provide a sum not to exceed $32,840 a year for a period of five years for the purpose of maintaining an international epidemiological intelligence service. The Board will also provide a sum not to exceed $60,080 a year for three years to put into effect a scheme for the international exchange of public-health personnel to be conducted under the auspices of the Health Organization of the League.

The Health Organization of the League of Nations was created by the League in September, 1921. Its principal function at present is to conduct an international epidemiological information service, and in general to promote international coöperation in the control of epidemic diseases. Incidentally it will advise the League in matters affecting health, and coöperate with the International Labor Organization in promoting industrial hygiene.

Since its establishment the intelligence service has kept all governments informed as to the status of epidemics of typhus, intermittent fever and cholera which have been sweeping westward from the famine stricken regions of Russia. Negotiations among European governments looking to the adoption of sanitary conventions for the control of epidemic diseases have been initiated by the Health Organization and much progress already made. It has also undertaken to promote the international standardization of vaccines and serums.

Interchange of health officials will be arranged not only for observation but for definite periods of service which will result in actual exchange of experience. The proposed system of exchanges will be put into effect first in Europe and may be extended as opportunity offers to other countries throughout the world.

✣

Labor Coöperating for Public Health.—Labor leaders and health workers in Minneapolis are coöperating to stimulate the unions of that city to promote the health of their members. A joint committee from the Minneapolis Trades and Labor Assembly and the Hennepin County Tuberculosis Association is making a survey of health conditions among the 141 unions of the city. The survey seeks to find what kind of health

service is already being rendered to their members and what needs are not yet being met. Two questionnaires have been sent out, one to the secretaries of locals, to find out what is being done as regards (1) cash sick benefits; (2) health service—nursing, physicians, dispensaries, hospital care, compulsory examinations, maternity benefits; (3) health educational work; and the other to individual members, to ascertain the number of working days lost through sickness, the amount spent annually on self and family for medical and dental care, and needed medical or dental care which is not being obtained. Housing conditions are also investigated.

The committee is confident that the survey will lead to a coöperative health program on the part of the unions. The form of this has not been worked out, but it is probable that a central health service will be provided, at cost, to the members of the unions and their families. A far-reaching program of health education at the center is also planned.

The Minneapolis unions have been encouraged by the success of the Union Health Center maintained by the International Ladies' Garment Workers in New York, under the direction of Dr. George M. Price. Clinics at union headquarters have also been conducted by the New York City Health Department. There are other signs of labor's increasing interest in public-health activities, such as official representation on the staffs of several public-health associations.—Ival McPeak, *American Federationist*, March, 1922, Vol. XXIX, No. 3.

✠

Health Section of the League of Nations.—Publications of the technical organizations of the League of Nations, including the Health Section, are now available to American readers through the general agents for the United States, the World Peace Foundation, 40 Mt. Vernon Street, Boston 9, Mass. They include: Minutes of the first and second sessions of the Provisional Health Committee, Epidemiological Intelligence (in Eastern Europe and Russia), Report of the Epidemic Commission of the League of Nations, and Report of the International Conference on the Standardization of Sera and Serological Tests.

The publication on Epidemiological Intelligence, No. 1, contains statistical tables of epidemic diseases, 1920-21, including typhus and relapsing fever, dysentery, Asiatic cholera, enteric fever and scurvy, for Poland, the Baltic states, and Societ Russia; charts, maps and graphs of high quality, illustrating the evolution of epidemics in eastern Europe, and exhaustive study of the incidence of typhus; data on the Russian Census, and other valuable material.

✠

Vaccine Manufacturers Upheld in Court.—The H. K. Mulford Co., manufacturers of biological products, have been acquitted in the Federal District Court in Philadelphia of manufacturing a vaccine alleged to have brought about the death of Dr. W. K. Rogers, formerly a physician of Columbus, Ohio. Dr. Rogers had been given a prophylactic course of vaccine treatment against cold and catarrh. Shortly thereafter his arm became inflamed and he died of an alleged streptococcic infection. The widow sued the company, claiming that the infection was transmitted by the vaccine itself.

In the course of the testimony the following points were brought out:

1. The vaccine used on Dr. Rogers was taken from a vial just removed from its package, and he was the first to be injected with its contents. Later, no less than twenty persons were injected with the identical vaccine used on Dr. Rogers, and none of these developed any streptococcic infection.

2. This vial was one of a large consignment purchased by the Carnegie Steel Company. More than 16,000 employees were injected from this consignment, and none showed any unfavorable reaction.

3. Tests made by independent bacteriologists showed that live virulent streptococci when added to the vaccine in question died in less than six weeks. The lot supplied to the Carnegie Company was made and packed more than four months before date of delivery.

4. The Mulford products, like all others licensed by the United States Government, are submitted to special duplicate tests of sterility, records of which are kept permanently on file, and physicians using them can at any time trace back the history of a particular vial.

It was therefore evident that the product was sterile, that streptococci even if present could not have survived until the date of injection, and that the infection of Dr. Rogers was not conveyed to him in the vaccine. The suit involved an expenditure of between $50,000 and $75,000. The plaintiff, instead of obtaining a large award of damages, was forced to bear a large proportion of this expense.

The responsibility in such cases rests not only with the manufacturer of the product, but also with the patient and his physicians. Anyone submitting to even a minor operation assumes the risk of a possible coincident infection. All such factors must be considered and it is clear that such cases cannot constitute a valid argument against vaccine treatment.

✠

Out-Patient Work in Ophthalmology.—As many problems represented by out-patient work in eye clinics were brought to the attention of the Associated Out-Patient Clinics of New York City, it was deemed advisable to call a meeting of the ophthalmologists representing the member institutions of the Association and to organize a section on ophthalmology for the purpose of considering these matters. Such a section was organized in January, 1922.

At the several meetings of the section, consideration was given to various topics, such as: Lack of professional standards, paucity of equipment, overcrowding in all clinics, especially for refraction; abuse of clinics by patients able to pay, failure of patients to secure glasses when prescribed, unsatisfactory financial arrangement with opticians, lack of uniformity of fees charged for admission, drugs, laboratory examinations, glasses, a lack of organization for research and incompleteness of records and inadequacy of filing systems.

The section decided that no official pronouncement on these matters would carry weight unless sufficient facts were gathered upon which to base recommendations. The executive committee, therefore, outlined the research which was considered necessary and the studies were made. Information was also secured as to the practice in representative clinics in other cities. A series of records was studied at each institution to ascertain their completeness from a scientific standpoint.

A summary of the findings of the studies, together with the conclusions and recommendations arrived at by the committee as a result of these findings, will be presented in the report of the section which will be available in the fall.

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Business Principles in the Management of Welfare Agencies.—The application of modern business principles to welfare agencies, and the increased returns effected thereby on the funds contributed, are described in a report just made public by the U. S. Department of Labor through the Children's Bureau. This report, entitled "Office Administration for Organizations Supervising the Health of Mothers, Infants, and Children of Preschool Age," is the outgrowth of requests for advice which came to the Children's Bureau from organizations in various cities. It embodies the experience of members of the staff whose services were loaned for studies and consultations, and the results of a study of methods used by 200 nursing agencies in both large and small communities. Although the report is directed especially toward the needs of agencies supervising the health of mothers and young children, certain fundamental principles set forth are applicable to the conduct of any office in the social field.

In the long run modern office management enables a society to do more work and better work than was possible at the same cost in old ways. If high standards of nursing service are to be maintained, strict requirements regarding the education, training, experience, and character of the nurse must be compensated by adequate professional salaries. The skilled nursing staff, moreover, must be supported by a skilled office force, intelligently and adequately equipped and directed.

Among the subjects with which the report deals are: The principles and methods of staff organization; selection and training of employees; office location and arrangement; selection of office furniture, equipment, and supplies; planning case record system; filing; financial administration; and publicity methods. It includes a bibliography, and an appendix giving details of four record systems in use by different types of nursing organizations.

Dulling Death's Scythe.—Occasionally, which is to say infrequently, there is to be found an objector to the vaccination preventive against smallpox who, for principle's sake, refuses to permit his children to be treated, thereby debarring them from school and getting himself committed to jail until reason prevails over fallacious conviction of right.

Notwithstanding this crass opposition, smallpox, once the greatest scourge of humanity, which counted its victims by the millions, is almost extirpated. Science holds the position of advantage, and the disease is slowly retiring into the limbo of dead pestilences. Much the same can be said of typhoid fever, which inexorably took its toll by the thousands, but which has succumbed to the irresistible march of medical discovery and combative skill. Typhus soon is to follow, and so is the menace of the centuries, once politely called the "great social disease," but now spoken of by its true name and fought openly rather than secretly.

It is satisfying and elevating to know that dread diphtheria, that slew the tender little flowers of the human garden without mercy, gradually is being conquered. Taking Philadelphia as a typical basis of comparison, vital statistics show that the death-rate from this malady has fallen from 96 for each 100,000 in 1896 to 17 in 1921, or slightly more than one-fifth. Beyond question, this inspiring gain is due to the employment of antitoxin when the onset of illness is detected. The effectiveness of the remedy has been vastly increased by the use of the so-called Schick test, which demonstrates whether or not the child is immune from the disorder. If susceptible, toxin-antitoxin is used, and immunization is secured.

The day will come, no doubt, when a death from this slayer of the innocents will be comparatively as rare as an adult's death from typhoid. These are but a few of the wonderful results of medical research, which should be made the care of every individual, and the state as well, without regard to the cost, to the end that the race may live.—Editorial, The Cincinnati *Enquirer,* June 7, 1922.

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Welfare of Women and Children.—The U. S. Children's Bureau has recently issued pamphlets on Industrial Home Work of Children (Bureau Publication No. 100), a study made in Providence, Pawtucket, and Central Falls, R. I.; Children of Wage-Earning Mothers (Bureau Publication No. 102), a study of a selected group in Chicago; and Child Labor and the Work of Mothers in Oyster and Shrimp Canning Communities on the Gulf Coast (Bureau of Publication No. 98). The U. S. Women's Bureau has issued a pamphlet on Women in Georgia Industries (Bulletin No. 22), a study of hours, wages, and working conditions. Health and sanitation are discussed in each of these three pamphlets.—(*J. A. T.*)

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SANITARY ENGINEERING

Don'ts for Sewerage and Water Works Designers.—The Minnesota State Board of Health in May, 1921, published instructions covering a number of features to be avoided when plans and specifications of proposed water and sewerage system are submitted. In the case of waterworks the instructions cover almost exclusively those features affecting the health of the community. Under sewerage design, however, the Board insists on adequate grades, a minimum for which is specified for different sizes of pipes, with the requirement of flush tanks wherever flatter grades must be used. By-passes are required in treatment plants so that in case of need any part, or even the whole plant, may be cut off. Not a small portion of the instructions is devoted to various requirements in the design of Imhoff tanks.—*Public Works,* June 24, 1922, p. 457.

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Columbus (O.) Filtration.—In 1921 the water softening and purification plant of Columbus treated 7936 million gallons, about 9% less than in 1920. Bacteria were reduced from an average of 2450 per c.c. to 24, the hardness cut from 169 p.p.m. to 100 p.p.m.—*Public Works,* May 20, 1922, p. 373.

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Tank Treatment of Sewage.—Both experience and experiments have gone far to show that separate sludge digestion tanks afford the most satisfactory method of tank treatment, securing a very high removal of suspended solids and complete digestion of the sludge without much danger of nuisance. No foaming is met with, no time spent squeegeeing, no scum has to be removed, no skimming of tanks is required and no un-

certainties of operation have to be considered.—*Public Works,* May 20, 1922, p. 373.

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Garbage Collection in Goldsboro.—In 1920 the city of Goldsboro, N. C., adopted a health and sanitary ordinance requiring all business houses and private residences within the city to obtain a standard metal covered garbage can, which was required to be placed as directed by the city through the local newspaper. The cost of garbage collection, which service is performed by the city, is met by direct taxation. Horse-drawn wagons are used and the garbage is disposed of by dumping on low ground at the edge of the town. The population of 12,000 furnish about 60 tons of garbage a week, or approximately 520 lbs. per capita per annum. This figure is between 2 and 3 times greater than the average quantities usually reported by cities.—*Public Works,* May 20, 1922, p. 369.

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Buffalo Filtration Plant.—The Bureau of Water of Buffalo is engaged in preparing plans for a 4,000,000 gallon filtration plant of 40 filters. While it is expected the plans for the pump house and filters will be ready for bids by next month it is felt that the mechanical features will not be ready until some time later.

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Water Consumption in Britain and America.—In Bradford, England, with a population of 400,000, the consumption is now 18,000,000 gallons per day, representing a daily per capita consumption of 46 gallons. Of this amount about one-half is used for trade and manufacturing purposes. In London the daily consumption is 34 gallons, in Manchester 36, and in Glasgow 60. The average for the principal towns in Britain is 35 gallons, ranging from 18 in Norwich to 80 in Paisley. New York requires 100 gallons and Washington 150, the average being nearly three times as high as Britain.—*Canadian Engineer,* May 2, 1922, p. 443.

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Bradford, England, Water Supply.—The water supply of Bradford has been municipally owned since 1855. The area of the various corporation watersheds is 25,080 acres, delivering to 6 reservoirs. Most of the supply is filtered. Rainfall in Britain varies from 20 inches, in the eastern counties, to 130 inches in the hills of Cumberland, Wales and Scotland. On the corporation watershed it ranges from an average of 32 inches to 54.4. Fortunately, for the wool washing, dyeing, bleaching, tanning and printing industries the water is comparatively soft, having but 2.5 degrees hardness. When it is considered that iron conducts heat 8 times better than calcium carbonate and 16 times better than calcium sulphate, and that ⅛ inch of scale on a boiler requires 16 per cent more fuel, ¼ inch requires 50 per cent, and ½ inch requires 150 per cent additional coal, the value of a soft water for boiler purposes can be realized.

Though prolonged storage undoubtedly has a beneficial effect, there is little question of the desirability of filtering a surface water supply. In Bradford there is a total filtering area in excess of 8 acres. The filters, which are of the slow sand type, consist of a watertight basin containing 2-3 feet of fine sand supported by 6-12 inches of gravel, or broken stone, resting on the underdrains. The rate of filtration is 2,000,000 imperial gallons a day. The bacterial efficiency of the filters, which depends on the gelatinous slime on the surface of the sand, is lowest immediately after the beds are cleaned. From the filters the water passes to service reservoirs which are being covered to prevent the growth of algae.—*Canadian Engineer,* May 2, 1922.

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Chlorine, Tastes and Odors.—Sanitarians are frequently called upon to investigate the occurrence of tastes and odor in water. Tastes resulting from excessive alga growths are not common in Canada as storage and impounding reservoirs are not extensively used. The chief trouble is due to tastes following chlorination, the cause of which is not as yet definitely known. Recent researches indicate that these tastes are due to the formation of chemical compounds known as chloro-phenols following the discharge into streams of industrial wastes containing phenols. Assuming that such is the cause, legislation should be adopted to prevent the indiscriminate discharge of such wastes into public sewers. It is felt that not only would tastes in waters that are treated with chlorine be prevented but many manufacturers could recover byproducts of suffi-

cient value to meet the cost of handling such wastes. No figures are yet available to show what amounts of phenol and chlorine are necessary to cause tastes, and this fact offers the research chemist a broad field. It may be found that chloro-phenols are formed only when definite quantities of each reagent are present and that either an increase or a decrease in the chlorine will eliminate the trouble. In some cases, as notably in New York, the suggestion of Houston, in England, that excess chlorine be used has been adopted and the taste eliminated. Dr. Houston recommends super-chlorination followed by dechlorination of the excess chlorine.—*The Canadian Engineer*, May 2, 1922, p. 451.

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Water-borne Typhoid in Havre.—Dr. J. Sanarens, one of a number of scientists who have investigated the serious typhoid epidemics in Havre, France, bases his conclusions on a sanitary survey of the entire watershed rather than on laboratory analyses. The water supply of the city is derived from small subterranean streams in a zone of chalk surmounted with a limestone area which apparently passes quantities of surface water for, during dry seasons, the water is remarkably free of micro-organisms, but after a period of heavy rains the water becomes turbid and high in bacteria. The maximum number of cases of typhoid have always occurred in August and September after the most violent rainfalls of the warm period. The increase in typhoid generally occurs 10 to 25 days after a heavy rain. Experiments carried on in connection with this study showed that the typhoid organism, when sown in water without the normal saprophytic organisms would remain viable for 100 days when exposed to diffused northern light. In order to determine the rate of infiltration of surface water only, very small amounts of fluorescin could not be used for fear of antagonizing the consumers on account of the color produced; consequently brewers' yeast was used as saccharomyces derevisae are not normally present in the water of Havre. Brewers' yeast thrown on the surface of the ground along various roadways was found within 6-48 hours, thus showing the rapidity of surface seepage.

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Odor Elimination, New Bedford Garbage Plant.—It has long been known that direct-heat drying of garbage is more economical than cooking, pressing and drying, but this method has not generally been adopted because of the bad odors generated by the dryers. With the development of a new and satisfactory deodorizing method the city of New Bedford, Mass., decided to change from the Cobwell system of reduction to the direct-heat rotary dryer. The vapors from the dryers are carried outside the plant by a duct that discharges close to the ground, that the presence of any odors may be detected. Deodorization is secured by discharging chlorine gas in proper volume, as controlled by a Wallace and Tiernan chlorinator, into a mixing chamber and thence into the duct. The velocity of the vapors through the duct is such that about 7 seconds' contact is maintained between the chlorine and the odor-bearing gases. Since installation, complete deodorization has been obtained at an average cost of about 1.5 cents a ton of garbage treated even when handling such material as putrid meat, rags, feathers and hair.—W. J. Springborn, *Public Works*, June 17, 1922, p. 442.

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Health Value of City Zoning.—Housing projects in order to receive government aid in England are limited to 8 families per acre for suburban conditions, and 12, 16 and 24 families for urban. Up to 1922 the regulation of the intensity of development in the United States has been secured only by such indirect methods as proscribing the percentage of lot area which a dwelling should cover and the sizes of yards and courts to be left open. The zoning ordinance of Newark, N. J., effective January 3, 1920, introduced provision for direct control of overcrowding and later ordinances show an actual limitation of intensity of occupation. The health value of proper zoning would effect, (1) less discomfort from smoke, odors, noise, dust and flies, with a possible increase in vitality and better health; (2) less crowding of public conveyances and so less contact infection; (3) less darkness and better air circulation on the street surface with fewer live pathogenic bacteria in street dust; (4) less shadow on the dark side of buildings and in the spaces about them, which means more light and improved ventilation; and (5) more cheerful outlook for the home.—Charles B. Ball, *Public Works*, June 17, 1922, p. 446.

LEGISLATION—FEDERAL

(From bi-weekly reports of the National Health Council, June 15-July 15, 1922)

PROGRESS ON MATTERS PREVIOUSLY CONSIDERED

H. R. 7456. Public Health and the Tariff. —The Senate has adopted an amendment to the Tariff Bill which reduces the duty on surgical instruments, "composed wholly or in part of iron, steel, copper, brass, nickel, aluminum or other metal," to 45 per cent ad valorem. The rate originally fixed in the Bill as it passed the House of Representatives was 35 per cent. The Senate Finance Committee subsequently advanced the rate to 60 per cent, which was considered excessively high and to which much objection has been made. The rate of 45 per cent is likely to remain in the final passage of the Tariff Bill. The Senate also adopted a rate of 35 per cent on dental instruments.

The Fordney Bill as it now stands does not contain any provision whatever permitting free importation, without duty, of philosophical, scientific and laboratory instruments, although the Payne-Aldrich Law of 1909 passed by a Republican Congress, contained such provision. The Underwood Tariff of 1913, which is now in force, does not permit free importation of scientific instruments. Unless educational institutions and persons interested in the restoration of such a provision in the Fordney Bill prevail upon the Senate to amend the existing bill by its insertion in the measure now before the Senate, the subject cannot later be adjusted by the Conference Committee. The desire to encourage the manufacture of scientific and laboratory instruments in America, even though further free importation of them to colleges and hospitals would necessarily cease, is given as the reason for the refusal to allow duty free entrance of these instruments. The Senate Committee on Finance has refused to grant a request for such exemption made by representatives of hospitals and colleges, which in past years have imported European instruments without paying any duty whatever on them. (A. J. P. H. July.)

H. R. 7156. Prohibition in Interstate Commerce of Brushes Contaminated with Anthrax.—Passed the House of Representatives, June 19, 1922. The proposed act not only prohibits the importation but also the shipment in interstate commerce of any shaving, lather, or hair brush containing horsehair. Hair brushes were added to shaving brushes by an amendment in the House. In the Senate the bill was referred to the Committee on Foreign Commerce. (A. J. P. H. May.)

H. R. 8086. To Prohibit the Shipment of Filled Milk in Interstate or Foreign Commerce.—Hearings started June 26, 1922, by the Committee on Agriculture and Forestry of the Senate. Having passed the House of Representatives, May 25, 1922, this bill (originally H. R. 6215) was sent to the Committee on Agriculture and Forestry of the Senate, who held hearings July 7 and 9. Among the witnesses was Dr. R. A. Bolt, who asked that S. M. A. milk products be exempted from the bill, as this blend is used in the scientific feeding of infants.

H. J. Res. 297. Conference to Prevent Pollution of Navigable Waters.—Passed the House of Representatives June 5, 1922. Passed the Senate June 21, 1922, with amendments. Declaring the dumping of oil and oil waste in the ocean by oil-burning and oil-carrying ships has become a serious menace to public health by the contamination of sea foods and other means, this joint resolution passed the Senate without a dissenting vote. Conferees were appointed by both houses to consider the amendments. (A. J. P. H. July.)

H. R. 12051. Site for "Tubercular School" in District of Columbia.—Favorably reported by the Committee on the District of Columbia, June 23, 1922. The Commissioners of the District of Columbia are authorized by this measure to erect a school for tubercular children of the District of Columbia on the government owned tract of land at Fourteenth and Upshur Street, N. W. A year ago Congress appropriated $150,000 for the construction and this site was chosen by the Commissioners. A court injunction prevented erection of the school and the bill proposes to give the necessary power to go ahead with the project.

S. 2597. Dwellings in Alleys of District of Columbia Prohibited.—Favorably reported by the House Committee on the District of Columbia, June 15, 1922. This bill is an amendment to the present act regulating the public health, morals and safety of the people of the District of Columbia. Occupancy

of dwellings situated in alleys of the District is prohibited. The bill as favorably reported has been placed on the House calendar. It has previously passed the Senate.

H. J. Res. 313. Disposal of Articles of U. S. Veteran's Bureau Patients. Passed the House of Representatives June 5, 1922. Passed the Senate June 21, 1922. This act is now at the White House for the President's signature. It empowers the director of the U. S. Veteran's Bureau to make regulations governing the disposition of articles produced by patients in the course of their curative treatment.

S. J. Res. 43. Granting Use of Temporary Buildings to the American Red Cross.—This resolution giving the American Red Cross authority to continue to use certain temporary buildings in the city of Washington as national headquarters, having passed both the Senate and the House has been agreed upon by the conferees of both houses. The conference report, however, has not yet been adopted, although it was ordered printed in the House on June 19, 1922. The Washington Office of the National Health Council is located in one of these buildings, through the courtesy of the American Red Cross, one of the members of the Council. (A. J. P. H. May.)

H. R. 9528. Hospital at Nome, Alaska.—Reported in the Senate by the Committee on Public Buildings and Grounds, June 27, 1922. This bill transfers the Detention Hospital at Nome to the U. S. Bureau of Education.

The Federal Act for the Promotion of the Welfare and Hygiene of Maternity and Infancy.—Plans approved. Opinion on Constitutionality. The U. S. Children's Bureau informs us that now the plans for the fiscal year ending June 30, 1923, of thirty-six states for administering this act have been approved. The number of states having accepted the act is still forty-two. In Louisiana, the legislature of which is now in session, the Senate Committee on Health and Quarantine reported unfavorably on June 21st on a bill to accept the Federal Act.

In the Congressional Record for July 1, 1922, (p. 10657) appears a speech by Representative H. M. Towner, one of the authors of the Act, regarding its constitutionality. This is in the nature of a reply to the Attorney General of Massachusetts who has given his opinion that the act was unconstitutional (see A. J. P. H. August). Since this matter is of interest to sanitarians we include a brief abstract to Judge Towner's opinion.

Representative Towner argues that the law is constitutional under Article I, section 8, of the Federal Constitution, which gives to Congress the power "to lay and collect taxes, duties, impost, and excises to pay the debts and provide for the common defense and general welfare of the United States." He endeavors to show from the preamble and various classic works on the Constitution, debates, statements of eminent authorities, and other interpretations the scope of the welfare clause. He states that the Public Health Service finds justification for its existence under this clause and cites other departments whose work would be banned if there is no authority in the welfare phrase. He continues that the "invasion of the police power of the States" is the objection which has been raised against every extension of governmental activity to cure abuses or relieve untoward conditions. To support his contention that the Congress has power over general welfare a number of court decisions are cited. He also mentions the land grant college appropriations from 1862 on, the Smith-Lever Act of 1914 for instruction in agriculture, the Smith-Hughes Act of 1917 for vocational education, and the federal aid to highway construction as precedents for the type of legislation represented by the Maternity and Infancy Act. In conclusion he outlines the provisions of the act and discusses its origin and justification.

Interdepartmental Social Hygiene Board Ceases to Exist.—The Interdepartmental Social Hygiene Board went out of existence on June 30, 1922, with the ending of the fiscal year. No appropriation for its continuance had been made. A bill (H. R. 11490, S. 3544) (A. J. P. H. July) has been introduced authorizing the Department of Justice to take over the work of the Board, but no action has as yet been taken on this bill. Hearings on the House bill were held on June 6, 1922.

PUBLIC HEALTH LEGISLATION APPROVED BY THE PRESIDENT SINCE LAST STATEMENT:

H. R. 2193. Prohibition of importation and use of opium for other than medicinal purposes. (A. J. P. H., July.)

H. R. 11065. Appropriations for Department of State and Justice for coming fiscal year.

H. R. 10972. Readjustment of pay and allowances of officers of Army, Navy, U. S. Public Health Service, Coast Guard, Coast and Geodetic Survey. (A. J. P. H., June.)

H. R. 9981. Appropriations for Executive and sundry independent executive bureaus. (This includes appropriations for U. S. Veterans' Bureau for coming fiscal year.)

S. 1911. Providing compensation for government employees suffering injuries while in the performance of their duties. (A. J. P. H., July.)

APPROPRIATION BILLS

H. R. 11228, 10871, 11065, 9724, 9981, 10329, 10559, 9859, 10730, 10267, 9237, 10663, 12090.—Appropriations made during the present session of Congress for the fiscal year July 1, 1922, to June 30, 1923, total $3,747,035,382 and are carried in thirteen appropriation bills. All of these became laws before the House adjourned on June 30, 1922. These appropriations are made under the budget system. The Director of the Budget states in a report issued May 8, 1922, that this system saved the Government $250,134,835.03 in 1922. Many of the appropriation bills have already been abstracted in these statements.

NEW LEGISLATION

(Matters Not Previously Considered)

Bills Relating to Leprosy.

a. $650,000 for care and treatment of lepers. House Document No. 346, containing communications from the President recommending an appropriation in order to provide facilities for government care and treatment of lepers.

H. R. 12105. Introduced by Representative Elliott of Indiana, June 21, 1922. Referred to Committee on Public Buildings and Grounds. As a result of the communication sent to Congress by President Harding asking for an appropriation of $650,000 to increase the facilities for the care and treatment of lepers at the government leprosarium at Carville, Louisiana, two bills have been introduced in Congress, one in the House of Representatives by Congressman Elliott of Indiana and the other (S. 3665) in the Senate by Senator Ransdell of Louisiana. Both provide for an appropriation of $650,000. In his communication to Congress the Director of the Budget is quoted as referring to this appropriation as necessary for the Public Health Service to continue its work in fighting leprosy.

b. H. R. 11589. Transfer of Leprosy Investigation Station to Hawaii Territory.—Passed the House of Representatives, June 19, 1922. The lands and buildings of the leprosy station at Kalawao, island of Molokai, is deeded back to Hawaii territory by the terms of this bill. The station has been abandoned as far as the U. S. Public Health Service is concerned, having been found unsuitable for use as a leprosarium. The government of Hawaii, moreover, has constructed at its own expense a $40,000 leprosy station for the use of the U. S. Public Health Service in the city of Honolulu. The return of this property on the island of Kalawao gives back the land to its original owners. Favorably reported to the senate by the Committee on Territories and Insular Possessions, July 6, 1922. In its report on this bill the Senate Committee recommends it for passage without amendment.

H. R. 12053. Defining Butter and Providing Standard Thereof.—Introduced by Representative Haugen, June 16, 1922. Referred to the Committee on Agriculture. Butter is defined in this proposed act as the food product made exclusively from milk or cream, or both, with or without common salt and with or without coloring matter, and containing not less than 80 per cent of milk fat and not more than 16 per cent water. This measure is an amendment to the Pure Food Act.

H. R. 12035. S. 3713. Creation of a Prohibition Bureau.—The first introduced by Representative Wood of Indiana, June 15, 1922. Referred to the Committee on the Judiciary. The second introduced by Senator Ernst of Kentucky, June 15, 1922. Referred to the Committee on the Judiciary. These bills, identical in wording, provide that a separate bureau under the direct control of the President shall be created for the enforcement of the prohibition and narcotic laws.

H. R. 12090. Third Deficiency Appropriation.—Reported favorably by House Committee on Appropriations, June 20, 1922. Passed the House of Representatives, June 24, 1922. This is the third deficiency appro-

priation bill for the fiscal year 1922. It contains many small items dealing with public-health matters. The bill is now before the Finance Committee of the Senate.

Hospitals.

a. $500,000 to operate immigration hospital at Ellis Island.—House Document No. 346. This is a communication from the President containing a recommendation by the Director of the Budget to Congress for the appropriation of an additional $500,000 to the U. S. Public Health Service to operate the government hospital for emigrants at Ellis Island, N. Y. It is explained that this hospital can be better operated by the Public Health Service than by the Department of Labor, because in instances when no emigrants are under treatment its facilities may be utilized by other patients. The executive communication was referred to the Committee on Appropriations in the House, June 13, 1922.

b. Acquisition of land for Walter Reed Hospital, Washington, D. C.—Senate Document No. 215. Referred to the Committee on Appropriations, June 23, 1922. This communication from the President recommends the appropriation of $44,109 for the acquisition of additional land for the Walter Reed General Hospital in the District of Columbia. The sum of $350,000 has already been appropriated by Congress for this purpose, but it was found insufficient to purchase the property authorized.

H. R. 12209. Meat Inspection.—Introduced by Mr. Stafford, June 28, 1922. Referred to Committee on Agriculture. This bill would permit meat inspected by municipalities to be shipped in interstate commerce. It amends the act of June 30, 1906.

S. 3871. Counterfeiting of Liquor Permits made a Crime.—Introduced by Senator Willis of Ohio, July 1, 1922. Referred to the Committee on the Judiciary. A penalty of from one year to ten years in prison and a fine of from $1,000 to $10,000 is provided in this proposed legislation to prevent the forging and counterfeiting of permits to obtain liquor from bonded warehouses and the forging and counterfeiting of a physician's prescription blank. Any person advising, aiding, procuring and connecting himself in any way with such an offense is also deemed equally guilty, according to the terms of the bill.

H. R. 12234. Pensions for Nurses.—Introduced by Mr. Denison, June 30, 1922. Referred to Committee on Invalid Pensions. This bill would revise pensions to soldiers and sailors of the Civil War and War with Mexico, their widows and dependents and certain army nurses.

A Review of Legislation Concerning Health Education Dated July 1, 1922

There are now before Congress two bills which are of special interest and importance in the field of national health education. They are the Smith-Towner Bill creating a Federal Department of Education and the Fess-Capper Bill for the promotion of physical education in the United States.

H. R. 7, S. 1252. The Smith-Towner Bill was introduced in the House as H. R. 7 on April 11, 1921, and in the Senate as S. 1252 on April 27, 1921. This bill would create in the government a new department of education headed by a cabinet officer. One of the duties of this department would be to undertake research in physical education, including health education, recreation, and sanitation. An annual appropriation of $20,000,000 is authorized for the purpose of promoting physical education and instruction in the principles of health and sanitation. This sum would be apportioned to the states which qualify under the provisions of the act in proportion to population. No action has as yet been taken on this proposed measure.

A Joint Congressional Committee on the Reorganization of the Federal Departments has been working for about a year on a plan for general reorganization of the government. This committee embraces in its scheme a department of welfare which would include divisions of education and health. A bill for a department of welfare was introduced in Congress last April, but this has been laid aside pending the reorganization report. The Smith-Towner Bill is also being held up until this report has been made. It seems likely that it will yet be some time before various differences of opinion concerning the proposed reorganization can be straightened out among cabinet members, and a general bill introduced.

H. R. 22, S. 416. The Fess-Capper Bill was introduced in April, 1921, as H. R. 22 and S. 416. It authorizes an initial annual appropriation of $10,000,000 for coöperating

with the states in the preparation of supervisors and teachers of physical education, including school-health supervisors and school nurses. In subsequent years there would be allotted to the states in the proportion of their population between the ages of six and eighteen years not more than $1 per child between these ages. A division of physical education would be established in the Bureau of Education to administer the act. Three hundred thousand dollars would be appropriated for the expenses of this division and $200,000 would be allotted to the U. S. Public Health Service for investigations relating to health supervision of school children. No action has been taken on this bill to date. Since similar provisions occur in the Smith-Towner Bill, as outlined above, the former seems more likely to be considered, if any bill on this subject is taken up in Congress.

State Legislation for Physical Education enacted up to July, 1921, is summarized in a pamphlet recently issued by the U. S. Bureau of Education (Bulletin 1922, No. 1). No legislation on this subject was enacted by many of the states, the legislatures of which were in session in 1922.

A synopsis of the child-hygiene laws of the several states, including school medical inspection laws, is contained in a pamphlet issued by the United States Public Health Service, November, 1920 (Public Health Bulletin No. 110).

STATE HEALTH NOTES

GENERAL

Alabama

The City Health Department of Birmingham has purchased 5,000 fly swatters which are being distributed to the homes in the city by the Boy Scouts.

District of Columbia

Dr. John T. Sprague was appointed chief of the Bureau of Preventable Diseases and director of Bacteriological Laboratory, June 16, 1922.

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Dr. James G. Cumming, Assistant Health Officer, resigned to go to Philadelphia as chief of the Bureau of Health, effective July 23, 1922.

The appropriation act for the fiscal year 1923 curtails in many instances appropriations for the conduct of the various services of the Health Department.

Florida

The Florida State Board of Health is continuing its venereal disease control fight with a considerable degree of success. Educational work is bringing about a more widespread knowledge of the menace constituted by these diseases, morally, physically, financially and industrially. One of the most hopeful signs is that substantial business men and large taxpayers are beginning to count up the costs of venereal disease to the state, and are reaching the conclusion that more money appropriated by the state and spent wisely by a strong State Board of Health is one of the primary needs in good government.

There are at present twelve clinics in the state for the free treatment of indigent cases and for a graduated fee in cases not indigent but not able to pay a full fee. Four of these clinics are conducted by physicians employed by the Standard Lumber Company, of which Thomas Hamilton of Live Oak is president. Public health in Florida is fortunate in that while Mr. Hamilton is one of the state's strongest business men, he is at the same time deeply interested in all matters pertaining to the control and eradication of venereal disease.

This work is a part of the work of the Division of Venereal Diseases, which is one of the divisions of the Bureau of Communicable Disease of which Dr. George A. Dame is Director.

Illinois

The State Department of Public Health has recently put into motion a campaign in favor of milk pasteurization. A model ordinance has been drawn up and the twenty-odd district health superintendents have been instructed to take advantage of every opportunity and to use every effort at their disposal in securing the adoption of the ordinance by the various communities in their several districts. Two recent and rather serious outbreaks of typhoid fever which were traced to the use of raw milk have aided materially in the success of pushing the campaign in certain sections. Nearly a score of the larger cities have the proposi-

tions of adopting the ordinance now up for consideration, while half a dozen have already adopted and are now enforcing it.

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The State Department of Public Health announces the completion of a new bulletin setting forth detailed instructions in reference to the medical inspection of school children. The function of the school physician, the place and work of the school nurse and the part that should be played by the teacher, as viewed by the Department, are all described. It is felt that the bulletin will be especially helpful to public-health officers, school nurses and teachers. Copies may be had by individuals or organizations in Illinois without cost.

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Typhoid fever cases reported to the State Department of Public Health for the first six months of 1922 show but slight deviation from the normal for similar periods in recent years, while whooping cough shows a marked decline. A total of 526 cases of typhoid have been reported for the half year, compared with 561 and 648 for the same months in 1921 and 1920, respectively. Only 3,629 cases of whooping cough have been reported, against 9,066 and 8,554 for the periods mentioned above. With the exception of rather sharp outbreaks at Kewanee, Marshall and Greenville, the typhoid incidence has consisted of isolated cases that were well scattered throughout the state. Springfield and one or two other points are in the midst of rather severe whooping cough epidemics.

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A new type of chlorinator, the first of its kind to be used in this section of the country, has recently been installed at the public water supply plant in Christopher. The new machine was purchased to replace one of an old type that has failed to measure up to the standard of service desired. Sanitary engineers attached to the State Department of Public Health are watching the operation of the new chlorinator in order that city officials and health officers in other parts of the state may benefit by the experience at Christopher.

✠

The division of social hygiene of the State Department of Public Health is coöperating with the division of venereal diseases of the U. S. P. H. S. in carrying out a recently developed plan whereby the advice and counsel of several of the nation's most prominent syphilographers and genito-urinary surgeons are made available to the practicing physicians without cost. The plan is referred to as the "Consultation by Correspondence" service. Private practitioners may forward descriptive information and other essential data relative to any of their patients either through the State Department at Springfield or directly to the U. S. P. H. S. at Washington, and it will promptly be placed in the hands of the proper authority for detailed and comprehensive discussion and reply. It is felt that this service will prove of exceptional benefit to the general practitioner who is urged to avail himself of this very practical means of contact with the specialists.

✠

A campaign for the eradication of mosquitoes and the prevention of malaria at Carbondale is now in full swing. A local fund of about $2,000 has been raised, and the Illinois Central Railroad, which maintains division headquarters and shops at the northern edge of the city, is expending about $8,000 for draining swamps and constructing ditches. A fishing club on a lake at the southern edge of the city is also financing the work to eliminate mosquito breeding in the lake. The State Department of Public Health is directing the work with the coöperation of the U. S. P. H. S. and the International Health Board. The Lions Club has guaranteed the local fund and the Boy Scouts and all civic organizations are coöperating to make the work effective.

Indiana

Dr. Arthur L. Oilar, all-time health officer of Fulton County, will visit some of the counties of Virginia and North Carolina which have all-time health officers and have made a reputation for good work.

✠

Fifty-seven towns and cities in Indiana in 1921 made improvements in their water supply. The improvements included complete filter systems, chlorination outfits, new reservoirs, private laboratories, new pumps, substitution of electric power for steam power, and boring of new deep wells.

Frank Wilson, milk expert employed by the Indiana State Board of Health, is now in Anderson with his traveling laboratory,

making a thorough milk survey of that city. He is meeting with good support from the business men and all the public organizations and newspapers.

✠

The Indiana State Tuberculosis Hospital for Children, voted by the Legislature of 1921, is now in process of erection on the state farm in Parke County, where the original state hospital was erected in 1909. The cornerstone of this hospital was laid July 12 by the governor of the state, assisted by Dr. J. N. Hurty, state health commissioner, both delivering addresses.

✠

The Health Board of Gary, Indiana, recently filed forty-seven prosecutions for violation of health laws in one day. All of these prosecutions were successful and fines were applied in each case. They were chiefly for insanitary conditions in the distribution of food and milk.

Iowa

A public-health conference was held at the University of Iowa July 18 to 21. This was the first conference of this nature held in Iowa since 1917, and was a big success in every way, so great, in fact, that a resolution was passed asking that it be made an annual event. The total registration of health officers, public-health nurses and others interested was about 50, an encouraging number for a new event. All the meetings were held in the Medical Laboratory Building, where exhibits of laboratory apparatus, models, charts and forms used in public-health work were displayed. The opening address was made by Dr. Walter A. Jessup, President of the University. Many subjects were covered by the various addresses, and inspections were made of the Children's Psychopathic Hospitals and the State Tuberculosis Sanitarium at Oakdale. Earl L. Waterman, Associate Professor of Public Health, was director of the Conference.

Kansas

Due to the resignation of Dr. Frank G. Pedley as epidemiologist, on Sept. 1 Dr. C. H. Kinneman will succeed him.

At the annual meeting on June 29 the State Board of Health created a new Division of Public Health Nursing, with Miss Hulda Cron as chief.

On Sept. 18-20 the Kansas Public Health Association will meet at Wichita.

Kentucky

Dr. Albert Stewart of Georgetown has been appointed director of the Scott County Health Department to succeed Dr. H. V. Johnson. The all-time health department in Scott County has been operating for two and one-half years under the direction of Dr. W. N. Lipscomb and Dr. H. V. Johnson.

✠

Miss Helen Donaldson, acting director of the School of Public Health of the University of Louisville and State Board of Health, is attending the summer school at Teachers' College, Columbia University, and will report back for duty Sept. 1.

Dr. J. S. Locke, director of the Bureau of Tuberculosis of the State Board of Health, and Dr. S. W. Bates, superintendent of the State Tuberculosis Sanitarium, are conducting a series of tuberculosis clinics in eastern Kentucky and report that splendid results are being obtained.

The annual tour of the Traveling Trachoma Clinic, under the direction of Dr. C. B. Kobert, director of the Bureau of Trachoma of the State Board of Health, began June 20. The following counties will be included in Dr. Kobert's itinerary: Hardin, Hart, Medcalfe, Edmonson, Greene, Butler and Cumberland.

Dr. Annie Veech, director of the Bureau of Child Hygiene, with the assistance of Dr. Alice Pickett and nursing staff, is conducting a series of child hygiene conferences and schools for midwives in southeastern Kentucky.

Dr. Jethra Hancock, director of the Bureau of Venereal Diseases, is carrying out an intensive campaign against the traveling carnival in the rural counties in the state.

A program of dairy inspection and tuberculin testing of cattle is being conducted by the Bureau of Food, Drugs and Hotels, in coöperation with the State Veterinary Department, under the direction of Miss Sarah Vance.

The Kentucky State Medical Association will meet in Paducah, Kentucky, Oct. 16 to 19. Dr. J. H. Stucky of Lexington is president, and Dr. A. T. McCormack, Louisville, is secretary.

✠

An early issue of the *Kentucky State Medical Journal* will be published as a memorial

to the life and work of the late Dr. J. N. McCormack. The publication of this issue will be under the direction of his life-long friend and associate, Dr. Lewis S. McMurtry, president of the Kentucky State Board of Health.

Maine

Governor Percival P. Baxter, with the advice of the Council, has rejected the provisions of the Sheppard-Towner Bill until the State Legislature meets.

✣

The Governor and Council have passed an order appropriating $5,000 from the State Contingent fund to be spent under the direction of Dr. C. F. Kendall, State Commissioner, during the next six months period.

✣

The University of Maine at Orono, and Bates College, at Lewiston, have established courses in public health, at their summer schools.

Massachusetts

Dr. Mabel A. Southard and Dr. Mary DeKruif have been appointed physicians to the Division of Hygiene, to do investigative work in the field of maternal and infant hygiene.

✣

Miss Evelyn C. Schmidt, health instructor in mouth hygiene, was delegated to attend the annual meeting of the National Dental Association in Los Angeles, California, July 17 to 22. The Department's mouth hygiene exhibit was shown.

✣

On June 9, 1922, the Legislature passed an order directing the Department of Public Health to investigate the entire subject of tuberculosis, including the matter of state, county and municipal tuberculosis hospitals, or hospital districts created by legislative act. This order further directed the Department to ascertain the cost of construction of tuberculosis hospitals and the present maintenance cost, and to report as to the advisability of the Commonwealth taking over and thereafter maintaining said hospitals. Finally, the Department was directed to report on the general policy to be pursued by the Commonwealth as to methods of treatment and distribution of expense.

In compliance with this legislative order Dr. Eugene R. Kelley, Commissioner of Public Health, appointed the following Special Board to make a study and to prepare a report: Dr. Sumner H. Remick, Chairman, Dr. J. E. Lamoureux, Dr. Roger I. Lee, Mr. Warren C. Jewett, Dr. Bernard W. Carey, Dr. Lyman A. Jones, Recorder.

✣

The legislature has authorized a Division of Mental Hygiene within the State Department of Mental Diseases.

✣

Through its Division of Hygiene, the Massachusetts Department of Public Health is developing plans for extending its maternity and infant hygiene service. The first feature of the new program to become effective will be an investigation of the causes of maternal and early infant deaths during the past year in Massachusetts. Two physicians have been added to the staff, as well as a vital statistician, to carry on this work. A supervisor and a staff of five nurses will soon be attached to the Division, whose main purpose will be to stimulate prenatal and infant care by the extension of public-health nursing service into regions not reached, by helping to raise standards of work already under way, and by a variety of educational methods demonstrating to the people the value of prenatal, maternal and early infant care.

In developing this work the policy of the Department will be in no wise changed, the main objective being, as heretofore, to stimulate and to assist the local community in meeting its own problem.

Michigan

"Fifty permanent mother and baby health centers in Michigan before July 1, 1923" was the slogan adopted at the first meeting of representatives of women's organizations which worked for the passage of the Sheppard-Towner bill. The meeting was called by Dr. Blanche M. Haines, director of the bureau of child hygiene and public-health nursing, to present bureau plans to the women supporters.

Representatives of seven state organizations (State Federation of Women's Clubs; Congress of Mothers and Parent-Teachers Associations; League of Women Voters; Woman's Christian Temperance Union; Women's Benefit Association of Maccabees; Ladies of Maccabees; and Michigan Agricultural College, Extension Department) voiced approval of the proposal to establish mother

and baby centers and plans were launched to begin the work, made possible by the passage of the Sheppard-Towner Bill. Directly after the meeting a health department representative left for Allegan county to organize a demonstration center, to be used as an example for other counties. It is planned to organize and operate the centers through local committees working in coöperation with state representatives.

✠

John P. Sanford, law enforcement officer of the venereal disease bureau of the Michigan Department of Health, died Tuesday, July 4, of heart disease. Mr. Sanford has been identified with the health department for the past four years.

Minnesota

Dr. Leverett D. Bristol, formerly connected with the medical faculties of Syracuse, Minnesota, Bowdoin and Harvard, and more recently director of the North Dakota Public Health Laboratories, and then State Commissioner of Health in Maine, has been appointed professor of preventive medicine and public health in the Medical and Graduate Schools of the University of Minnesota.

Montana

The fourth annual meeting of the Montana Public Health Association was held in Great Falls at the Junior High School Building, July 10 and 11. Officers of the Association are John G. Brown, president; Mrs. S. M. Souders, first vice-president; W. F. Cogswell, M.D., secretary.

Addresses were made by the president of the association, Mayor R. M. Armour, Dr. B. L. Pampel of the State Board of Health, Miss Edith Kassing, Supt. Montana Vocational School for Girls of Helena, Dr. H. S. Cumming, U. S. Public Health Service, Dr. T. B. Beatty, State Health Commissioner of Utah, Dr. E. M. Hammes, St. Paul, Minn., Dr. James J. Waring, Denver, Colo., Dr. F. C. Rodda, Minneapolis, Minn., and others. At the section meetings numerous interesting papers were read, followed by discussions.

New Hampshire

The statistics recently compiled in the vital statistics department of the State Board of Health show that in 1921 there were 10,125 births, 6,098 deaths. The birth-rate per 1,000 population was 22.78, the highest in thirty-eight years for which statistics have been compiled. The death-rate per 1,000 population was 13.72, the lowest in thirty-eight years.

✠

The New Hampshire State Board of Health has started its pioneer work in prenatal and infancy hygiene in Sullivan County as that district seemed to be a particularly good field, the infant mortality being high. A nurse has been placed there who has had splendid training and unusual experience in this line of work. Her work will be confined largely to the rural districts, and mostly of an educational advisory character. A broad educational program has already been started in order that the public should see and understand the vital necessity for prenatal care and infancy and child hygiene.

✠

The Merrimack County Medical Association, at a recent meeting, went on record as advocating a clinical examination of presumably well people twice a year. The family physicians are at the clinics. Physicians of Merrimack County are determined to conduct an energetic campaign in the interest of better health. The resolution was also passed stating the desirability of treating tuberculous patients at general and municipal hospitals, providing separate wards be maintained. Over 700 children in Hillsborough County have already had the benefits of the rural dental clinic which has been operating there for the past six months under the auspices of the local school boards and the Farm Bureau. Calls for the clinics have been received from a number of other towns in other counties.

✠

At a recent meeting of the directors of the New Hampshire Tuberculosis Association, it was voted to hold the annual meeting in Nashua the latter part of October in the form of a public-health conference open to the public and health workers throughout the state.

A tuberculosis clinic was held during the month of July in Lancaster. This center will accommodate many of the surrounding towns and is the second to be opened in Coos County. A third is to be opened in September in Colebrook, making a total of

thirty tuberculosis health clinics established in the state by the Association.

✣

A nurse whose entire time will be devoted to the tuberculosis cause has been placed in Sullivan County. A thorough county survey is to be made, and clinics will be held in Claremont and Newport.

✣

The New Hampshire Tuberculosis Association, coöperating with the State Board of Health in its desire to be of service to the public-health workers in the state, has opened its public-health library to all nurses engaged in this form of work.

New Mexico

Dr. LeRoy S. Peters, Albuquerque has been appointed to the State Board of Public Welfare to succeed Dr. A. G. Shortle, who died in May.

Miss Bertice A. Rees, R. N., has been appointed to do demonstration work in the hygiene of maternity and infancy, under the allotment made to New Mexico from Sheppard-Towner funds. Through the same funds the State Bureau of Health has been enabled to engage Miss Louise Wills, R. N., as a midwife instructor. It is planned to have Miss Wills visit the eight counties in which full-time health units are organized, giving a course of instruction to classes of midwives, in accordance with a series of lessons prepared by the Bureau of Public Health. It is intended that the local health officer and nurse shall continue supervision over these midwives after they have received their course of training.

✣

A large number of new regulations have been prepared by the Bureau of Public Health, and will be submitted to the State Board of Public Welfare at its next meeting. These regulations have to do with the sanitation of swimming pools, of labor camps and of camp grounds, the operation of sewage disposal plants, the use of a prophylactic for the prevention of infant blindness and additions to the regulations now in force.

✣

The Bureau of Health has recently purchased a De Vry Motion Picture Projector and a Balopticon for educational purposes. The projector is of a 30-volt type, designed for operation on storage batteries and will be used in rural communities.

✣

The Public Health Laboratory at the University of New Mexico, Albuquerque, is receiving an ever-increasing number of specimens for examination. The total number examined in 1920 was 3,851, while in 1921 it was 7,787. For the first six months of this year, the specimens numbered 4,865, which will mean that at least 9,000 will be handled by the end of the year, if the same rate prevails.

New York

Dr. M. Luise Diez of Philadelphia has been appointed obstetrician in the Division of Maternity, Infancy and Child Hygiene of the New York State Department of Health. Dr. Diez is a graduate of the Women's Medical College of Pennsylvania and had her interneship at the West Philadelphia Hospital for Women. She has had 15 years of obstetric practice in Philadelphia and has been attending obstetrician at the Women's Hospital of Philadelphia and on the obstetric and gynecological division of the Philadelphia General Hospital, and the West Philadelphia Hospital for Women. She has, in addition, had a special postgraduate course in obstetrics at Dresden, Germany.

✣

Valconlon L. Ellicott, M. D., Dr. P. H., of Baltimore, has been appointed epidemiologist in the New York State Department of Health. Dr. Ellicott is a graduate of the Medical School and the School of Hygiene and Public Health of Johns Hopkins University. Since graduation he has served as interne in the Willard Parker Hospital, New York City.

Ohio

The results of an investigation made by sanitary engineers from the Great Lakes station at Chicago, under the direction of Arthur E. Gorman in the summer of 1921 showed that the water for drinking and culinary purposes on steamboats was supplied in a very unsatisfactory manner. In some instances the water was carried in buckets and barrels from approved sources on shore, in others by pumping direct from the river.

This has all been changed, and the water now supplied is of dependable purity on all steamboats operating out of Cincinnati, thus

insuring travelers against the danger of polluted drinking water. There are two water service lines, one at each end of the public landing, running to the wharves with taps at different levels so that filtered water can be drawn at various stages of the river.

All of the steamboats calling at Cincinnati have now been equipped with approved metal storage tanks and piping systems for storage and distributing city water, and modern water coolers in which the water does not come in contact with the ice.

Coöperating with the United States Public Health Service one of the sanitary inspectors has been collecting samples of the water used for drinking and culinary purposes every week on each steamboat. Over one thousand samples have been analyzed in the laboratories of the health department and the results forwarded to the district engineer. Mr. A. L. Dopmeyer, in charge, reports that all of the vessels now calling at the port of Cincinnati are equipped in such a way that they will supply a water to the public for drinking which is as safe and pure as that supplied to citizens in their own homes. Certified water stations have also been established from Pittsburgh to Cairo along the Ohio River.

Pennsylvania

James F. McCoy, executive secretary of the Pennsylvania State Health Department, has been appointed private secretary to Governor William C. Sproul. Clinton T. Williams, former chief of the Division of Accounts, State Health Department, is now serving as executive secretary.

Miss Leona Mitchell, a graduate of the Rochester Dental College, has been attached to the Dental Division of the State Health Department. She will give lectures and demonstrations before the school children of the state.

✠

A camp for 200 undernourished school children, taken from the rural districts of the state, has been opened on the grounds of the state sanatorium at Hamburg. They will be properly fed, exercised and rested that they may be in normal physical condition when the fall school term opens. More than 600 applications were received from doctors, nurses, and school teachers, asking this service for undernourished children under their care.

✠

Members of local boards of health in Pennsylvania have banded together in groups comprised of several counties.. Permanent organizations for a uniform enforcement of state health laws and regulations have been effected, officers elected and constitutions adopted. Members of the State Health Department attend their meetings for the purpose of answering questions which may arise regarding health law administration, and to show how these laws can, and should be, enforced by the local authorities.

Tennessee

Roane and Montgomery Counties have approved budgets for the new fiscal year by which county health demonstration work will be continued in coöperation with the Bureau of Rural Sanitation of the State Board of Health. In both counties very effective work has been done in the past and a material expansion of activity is planned for the coming year.

✠

Williamson County has just approved, by unanimous vote of the budget committee, the budget for the second year's work of its full-time health department. This department was established in coöperation with the State Board of Health one year ago with a budget of $9,000, and begins work during the new fiscal year with a budget of approximately $12,500 and a staff consisting of a full-time health officer, health inspector, three public-health nurses, and a clerk-technician. The county has about 24,000 people and will be well served by a health department involving a per capita expenditure of over fifty cents.

✠

Gibson County, by an overwhelming vote of its county court, established a full-time health department and approved the county's portion of a coöperative budget arranged between the State Board of Health, the local Red Cross, and the county. While the county has about 40,000 people, the total budget of $12,500 will provide an effective health department. Leading features of the program will be communicable disease control, child hygiene and, county-wide malaria control activity.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Studies on Blood Cholesterol in Syphilis.—The positive Wassermann reaction on the blood apparently does not depend on high cholesterol value. While it is interesting to corroborate this fact, it is not surprising in view of the probable complexity of the Wassermann reaction. The amount of arsphenamin given and the time between injections do not obviously affect the blood cholesterol values. If cholesterol is an agent of defense in syphilis, it has not been detected in most cases in greater amount than might be expected in a series of average nonsyphilitic persons, and hence it is not affected materially by treatment for syphilis. The majority of syphilitic patients have high or normal differences between the Bloor I and Bloor II values, while only a few have low differences; the significance of this has not been determined. There is, apparently, no relation between the cholesterol values and the clinical and serologic response of the patient. The only recognizable relation between the clinical type of syphilis and blood cholesterol values is the large proportion of high cholesterol estimations in syphilis of the central nervous system.—Albert R. McFarland, *Arch. Dermat. Syph.* 6, 39 (1922).

✣

Studies in Post-Mortem Bacteriology.—Bacteriologic cultures were made post mortem in 213 cases. The blood was cultured in 206 cases and it was positive in eighty cases. The spleen was cultured in 190 cases and was positive in 75 cases. The spleen serves as well as, if not better than, the heart's blood for determining a terminal bacteremia. If discrepancies occurred in the results obtained by ante-mortem and post-mortem cultures, these differences were generally explained by the evidence of a superimposed process revealed at necropsy. Uniformly negative results secured in the cases which are ordinarily regarded as non-infectious in type, strengthen the authors' belief in the reliability of cultures made post mortem. A failure to obtain positive blood cultures in 51 cases, in which an abundant focus of infection was demonstrated at necropsy, leads the authors to believe that invasion of the blood stream after death rarely occurs. It is possible that terminal invasion may occur, and if it does occur it must not be dismissed, as it may be the most important contributory factor to the cause of death. With strict adherence to a reliable technic, post-mortem bacteriologic findings are extremely valuable.—Alfred S. Giordano and Arlie R. Barnes, *Jour. Lab. Clin. Med.* 7, 538 (1922).

✣

Widal Technic Using Sterilized Cultures.—Killed cultures of typhosus have proved unsatisfactory for the microscopic agglutination test for typhoid. They are satisfactory, however, for use in macroscopic agglutination tests. If more comparable results are to be obtained in different laboratories, it may be desirable to have carefully standardized killed cultures prepared at a central laboratory for distribution.—Ruth Gilbert and Anna C. Moore, *Jour. Lab. Clin. Med.* 7, 547, 1922).

✣

A Simple Method of Counting the Cells in Cerebrospinal Fluid.—The counting chamber used was the Levy counting chamber with double Neubauer rulings. The diluting fluid is that recommended by Levinson (Methyl violet 0.2 gm., glacial acetic acid 5 c.c. and water to make 100 c.c.). With a pipette (1. c.c.) accurately mix equal parts of cerebrospinal fluid and diluting fluid (0.5 c.c. of each). Adjust cover of counting chamber and with a fine capillary pipette, allow preparation to flow over both rulings, using the same precautions as in making a preparation for a blood count. Let settle five minutes for the cells to stain and for the preparation to become even. Count all the cells in the four corner blocks of sixteen large squares used for counting white blood cells and the central block of four hundred small squares used for the red blood count. Move to the other ruling and repeat the process. The total number of cells counted multiplied by two gives the total cells per cubic millimeter. Use the high dry lens because the cells are not mistaken for debris and the differential count

may be performed at the same time.—Chas. F. Carter, *Jour. Lab. Clin. Med.* 7, 555 (1922).

✠

The Making of Collodium Sacs.—The greatest difficulty in the making of dialysis membranes is the separation of the collodium sac from its glass mold. To obviate this difficulty the following technic has been successfully used: Place a small collar of paper one inch wide in the mouth of the tube before adding the collodium. Then pour the collodium into the tube, filling it completely. The collodium is then poured back into stock and the tube allowed to dry by hanging upside down for a few minutes. The tube is then placed in a 55° C. thermostat (drying oven) for one-half hour, or allowed to stand at room temperature for several hours, to allow the collodium to dry. At the end of this time the collar is gently pushed in at some point and distilled water poured in between the collodium sac and the glass container. As soon as the container is full of water the sac can be easily removed. By this method as many as twelve bags can be loosened in ten minutes. The paper collar is a very convenient handle for the sac, both in the separation from the glass mold and afterward. An illustration accompanies this article.—Nathan Muskin and Louis Siegel, *Jour. Lab. Clin. Med.* 7, 564 (1922).

✠

Van den Bergh Test in Differentiating Types of Jaundice.—The value of this test in the differentiation of obstructive from what may be termed functional and hemolytic jaundice is illustrated by reports of cases. Van den Bergh applied the so-called "diazo reaction" first described by Ehrlich to detect the presence of bilirubin in blood serum. Normal serum contains bilirubin in a dilution of from 1:400,000 to 1:250,000. Such a dilution in human serum is readily detected by the diazo test. No other substance likely to be present will give the reaction. To 1 c.c. of blood serum, in a small test tube, 0.25 c.c. of freshly prepared diazo reagent is added. The color reaction obtained in from ten to thirty seconds is a bluish violet, of intensity depending on the amount of bilirubin present. A delayed reaction begins only after from one to fifteen minutes, or even longer, and consists of the development of a reddish coloration, which gradually deepens and becomes more violet. If the reaction is immediate or direct an obstructive jaundice is indicated. Where no direct reaction has been given, but a perfect indirect reaction after alcohol precipitation, then the jaundice can be inferred to be either hemolytic in origin or dependent on some functional derangement of the liver cells without obstruction.—J. W. McNee, *Brit. Med. Jour.* May 6, 1922; *Jour. A.M.A.* 78, 1928 (1922).

✠

Heat Test for Sugar in Urine.—The author states that a drop of urine containing sugar evaporated on a microscopic slide over the flame of a spirit lamp leaves a "tacky" glistening film of syrup. Further heating converts the deposit into burnt sugar or caramel. Urine containing 14 grains to the ounce according to fermentation test, gave the reaction after dilution with five times its volume of water.—J. Livingston, *Brit. Med. Jour.* May 6, 1922; *Jour. A. M. A.* 28, 1929 (1922).

✠

Use of Phenol Red as Indicator.—The author adds one part of condensed milk to four parts of tap water. To 5 c.c of this a few drops of phenol red solution are added, and tenth-normal sodium hydroxide solution is added to the diluted milk in bulk and sufficient saturated aqueous solution of phenol red to make the milk a vivid brick-red; provided that care is taken to stop the addition of alkali when the brick-red color is reached corresponding to a_{p_H} of approximately 7.5 the subsequent production of acid or alkali by an organism in this medium will be demonstrated clearly. The medium is then tubed and steamed for 20 minutes on three successive days. Such a medium is said to show changes in reaction in a much more vivid manner than does litmus milk, and the production of an initial acidity, which is followed by alkalinity, as in the case of B. paratyphosus B, is well demonstrated.—H. C. Brown, *Lancet, London* April 29, 1922; *Jour. A.M.A.* 78, 1930 (1922).

✠

Composition of Human Blood.—Among the data compiled by the authors for their research on ten men and ten women is the finding that there is approximately 2 per cent more ash in the blood of men than of women. The average number of red corpuscles in normal men ranged from 4,750,000 to 6,333,000 with the extreme limit at 6,500,000. In normal women the range was from 4,000,000 to 4,250,000 and up to 5,250,000, and extreme limit, 5,500,000. Men's blood can absorb more

oxygen than women's blood. This is evidently due to the larger proportion of corpuscles.—V. Bie and P. Moeller, *Arch. Malad. du Coeur,* 15, 177 (1922); *Jour. A. M. A.* 79, 165 (1922).

✣

Precipitation Velocity of Blood Corpuscles in the Diagnosis of Surgical Affections.—The author found in a group of 100 uncomplicated fractures an increased rate of precipitation of blood corpuscles in all cases. In the most severe fractures the increase was noted twelve hours after the accident at the earliest, but always after twenty-four hours. In hundreds of other surgical cases it was observed that the rate of precipitation paralleled the size of the area affected by the inflammation or the amount of degeneration in a tumor. This finding has practical diagnostic value in abdominal surgery, in order to form a judgment in regard to the size of the affected area; especially in appendicitis, for during the intervals in which the inflammation dies down there is no increase in the precipitation rate.—W. Loehr, *Deutsche med. Woch. schr.* 48, 388 (1922); *Jour. A.M.A.* 79, 84 (1922).

✣

Test-Tube Holder for Collection of Ureteral Specimens.—The test-tube carrier consists of a strap 1 inch in width, attached by buckles to the stirrups of the cystoscopic table. The strap is best made of some nonabsorbable material, such as thin rubber sheeting. There are two pockets on the strap which are made of garter elastic to accommodate themselves to any size test-tube or centrifuge-tube. When not in use the strap is released from one stirrup and allowed to hang from the other, and is always at hand for the collection of ureteral specimens.—Charles S. Levy, *Jour. Urol.* 7, 333 (1922).

✣

Colon Bacilli in Renal Infections.—Colon bacilli can be isolated from the cervix of the uterus and from feces of patients with renal infections which correspond in serologic and biologic tests to the bacilli from the urine of the infected kidney. Some hemolytic colon bacilli belong serologically in the same group. The hemolytic property is not accidental but persists during weeks of infection in the urinary tract as well as on artificial media. There is no definite relation between hemolysis by colon bacilli and their fermentation of sugars. The incidence of hemolytic colon bacilli in renal infections is greater than generally known and this type of bacillus has a greater average of virulence than the nonhemolytic but the latter appears to persist longer.—R. D. Herrold, *Jour. Urol.* 7, 473 (1922).

✣

Immunological Studies on Diphtheria Bacilli.—The group of diphtheria bacilli contains strains belonging to several agglutination types. The toxins formed by these different types are, however, qualitatively alike and, from the practical standpoint, quantitatively so. Whether or not there are slight quantitative differences, further studies will be necessary to show. Strong toxin from any diphtheria strain is suitable for the Schick test and for immunization of man or animal. A monovalent antitoxic serum is suitable for protective and curative measures against all diphtheria strains.—W. D. Park, Anna W. Williams and Alice G. Mann, *Jour. Immun.* 7, 243 (1922).

✣

A Synthetic Medium for Growing Tubercle Bacilli.—The authors claim that they have succeeded in producing synthetic medium for the cultures of tubercle bacilli, which is constant in composition and of a suitable hydrogen-ion concentration. The full formula is as follows:

Acid potassium sulphate	0.25 gms.
Potassium monophosphate	0.5 gms.
Magnesium sulphate	0.25 gms.
Sodium nitrate	1 gm.
Ammonium carbonate	1 gm.
Asparagine	4.5 gms.
Glucose	5 gms.
Mannite	5 gms.
Glycerine	20 gms.
Potassium silicate	0.02 gms.
Iron sulphate	0.03 gms.
Distilled water	1 litre

The hydrogen-ion concentration of the mixture is 6.9. If such a medium is innoculated with a large surface, up to 1 gm. of dried bacilli may be obtained in 20 days. The simplicity of composition of the culture medium, its constancy of results, the abundance of yield, and the possibility of obtaining by its use a tuberculin free from peptone, are noteworthy points.—Borrel, Coulon, Boez and Quimaud, *C. R. Soc. Biologie,* Feb. 18, 1922; *Brit. Med. Jour.* May 6, 1922.

The Staining of Spirochetes in Films.—Fix the films in a mixture of formaline 2 parts, acetic acid 1 part, water 100 parts; complete fixation in alcohol-ether. Heat in a test tube the following fluid, which has been recently filtered: 5 per cent tannin 3 parts, 3 per cent aniline hydrochloride 1 part; pour the boiling water on the film and allow it to cool. Wash off in running water. Stain for a minute in boracic methylene blue. The spirochetes stain blue.—Puente, *C. R. Soc. Biologia,* Feb 18, 1922; *Brit. Med. Jour.* May 6, 1922.

✠

A New Modification and Application of the Gram Stain.—In developing a modification of the Gram stain which could be used in staining milk smears, the difficulty has been to secure a decolorizing solution which would allow the Gram-positive organisms to retain the stain and still remove the color from the milk and the Gram-negative types. The stain is as follows:

Gentian-violet solution.

Aniline oil	3.0 c.c.
Alcohol (absolute)	7.0 c.c.
Water	90.0 c.c.
Shake; filter	
Genetian violet (Gruebler)	2.0 gms.

Iodine Solution

Iodine	1.0 gms.
Potassium iodide	2.0 gms.
Water	300.0 c.c.

Decolorizing Solution

Aniline oil (2 parts) / Xylol (1 part)	...mixture 5 parts.
Alcohol (95%)	95 parts.

Counter Stain

Bismarck Brown	4.5 gms.
Water (boiling)	50.0 c.c.
Filter	
Alcohol (95%)	30.0 c.c.

The method has been used for the routine examination of milk samples for an entire season with great satisfaction.—G. J. Hucker, *Jour. Bact.* 6, 395 (1922).

✠

Medicolegal Application of the Blood Group.—The criteria of Ottenberg to govern legitimacy by means of the blood group are dangerous. The blood group cannot be used in the adjudication of medico-legal disputes concerning parentage without carrying the grouping back at least three generations, and even then there exists the possibility, because of the heterozygous status of a parent, of an unexpected, yet legitimate, group appearing without its definite origin having been determined.—J. Arthur Buchannan, *Jour. A. M. A.* 79, 180 (1922).

✠

Icterus Index of Blood Serum.—Muehlingradt recently described a method for determining bile pigments in the blood. Briefly, it consists of comparing blood plasma with a standard solution of potassium bichromate and diluting the plasma with physiologic solution of sodium chloride until its color approaches that of the standard. The potassium bichromate solution (1:10,000) is approximately equivalent to the color of a nonicteric plasma. The author has modified this method, using serum instead of plasma. The technic is as follows: A solution of potassium bichromate 1:100,000 is used as a standard. From 5 to 10 c.c. of blood are obtained, and the serum allowed to separate. The serum is compared in a colorimeter (Duboscq) with the standard bichromate solution. The standard may be set at 10, 15 or 20 mm. The icterus index is obtained by dividing the reading of the standard by the reading of the unknown. When the color of the serum is too dark, and cannot be compared with the standard solution, the serum is diluted with physiologic solution of sodium chloride until its color approaches that of the standard. In 156 cases giving no clinical evidence of jaundice, the lowest value obtained was 1.6 (fracture of skull), while the highest was 12 (pernicious anemia), the average being 3.6. An icterus index varying between 2.5 and 6 may be considered as normal.—H. P. Maue, *Surg. Gyn. Obst.* 34, 752 (1922); *Jour. A. M. A.* 79, 243 (1922).

✠

Serodiagnosis from Blister Fluid.—The author remarks that the serum in a cantharides plaster blister responds to the Wassermann and the tuberculin tests like the blood serum but with less intensity. The assumption is gaining ground more and more that the skin is an organ with an internal secretion, and plays an important part in the production of defensive substances. This is evidenced, among other things, by the more generally favorable course of syphilis when a rash develops under mercurial or arsenical treatment.—A. Buschke, *Med. Klinik (Berlin),* 18, 593 (1922); *Jour. A. M. A.* 79, 251, (1922).

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by E. R. Hayhurst, M.D.

Lead Poisoning in Industry.—The large number of industries in which lead poisoning may arise tends somewhat to exaggerate the importance with which this disease is sometimes regarded. The author refers to the proposed prohibition of white lead in painting and to the proceedings of the International Labour Conference regarding the prohibition of white lead in paints, and states that sentiment rather than facts appeared to be the arguments relied upon by the Conference in discussing the question. The majority of the evidence related more to lead poisoning in general than that among painters. The Commission did not make a final recommendation for total prohibition of white lead in painting. Two tables are presented illustrating the attack rate and the relative severity of lead poisoning in various industrial processes. The most severe cases occur in processes in which but a limited amount of lead is absorbed each day over a long period of time, as exists in file making and house painting. Statistics of claims for occupational disease compensation in Great Britain in 1919 show that lead poisoning formed only 2.3 per cent of the total claims. In 1920 the ratio was about the same. Lead poisoning among painters formed about one-fourth of the total reported cases of lead poisoning. With reference to tuberculosis the author makes the interesting observation that tuberculosis among the painters is much more common than among other lead workers. This is attributed to the inhalation of silicious dust associated with the use of sandpaper in dry sanding. The occurrence of gout among painters is attributed to the volatile thinners used as a vehicle for the application of paint. The relative incidence of lead poisoning for given industries and the proportional risk attached to any given industry is still a matter of conjecture.

The mechanism of poisoning in the various processes is described in detail. The amount of risk of poisoning through lead gaining access to the mouth from unwashed hands is extremely small. Previous to 1900 various regulations were in operation with regard to the provision of washing accommodations, overalls, food and hygienic precautions; but from 1900 onwards the establishment of exhaust ventilation for dust removal in dusty processes was initiated and a diminution of cases of lead poisoning commenced at once. Charts are presented illustrating these points. The author ascribes the various lead paralyses to hemorrhages found in the sheaths of nerves supplying the affected muscles. The pathology and symptoms of lead poisoning are described in detail. With reference to paralysis it is stated that cases of wrist drop observed in the past twenty years have all recovered. Thirteen per cent of lead cases have rheumatic manifestations, mainly in the vicinity of joints. The greatest incidence of lead poisoning comes during the first year of exposure and the later years show only sporadic cases, which is attributed to the development of a certain amount of tolerance for the agent. As far as can be ascertained from observation and animal experimentation an amount greater than 2 mg. of lead per diem is an unsafe dose to absorb. Any factory air which shows that men exposed to it would inhale more than 2 mg. per day must be considered as highly dangerous. Periodical medical inspection with power to shift the workers from a dangerous process to a less dangerous one and industrial compensation for lead poisoning, tend to reduce the number of cases, "thus effecting the true aim of industrial hygienists, the improvement and safeguarding of workers by the introduction of precautionary and hygienic regulations without interference with the economic relations or the conduct of the industry."—Sir Kenneth Goadby. (Lecture delivered in the Royal Institute of Public Health.) *Jour. of State Medicine*, Vol. XXX, No. 3, March, 1922, pp. 93-112.—E. B. S.

Tenth Annual Report of the Medical Department of the United Fruit Company.—This Bulletin has 110 pages, is unusually replete with statistical material showing such

features as the personnel of the medical department, summary of the work done at the various hospitals and dispensaries in Central America and the West Indies and the types of diseases encountered by both employees and passengers on the vessels of the company and at the various holdings. Dr. W. E. Deeks is general manager and has his headquarters at New York. The medical staff is placed at ten locations and comprises a total of 40 physicians, 21 nurses and 407 other employees. A total of 208,310 patients were treated (exclusive of steamships) during the fiscal year ended December 31, 1921. Of these, 110,943 were treated in hospital dispensaries, 71,077 in field dispensaries and the balance elsewhere. The vast proportion of these were colored employees, chiefly of Jamaica, Haiti, Spanish Honduras, Costa Rica, Columbia and Cuba. In regard to deaths due to endemic or infectious diseases there were: typhoid fever 24, malaria fever or cachexia 167, smallpox 3, influenza 22, cholera nostras 1, dysentery 33, tetanus 12, tuberculosis (all forms) 96, syphilis 5, and a number of others. Cancer caused the death of 20, bronchial pneumonia 77, and lobar pneumonia 157. The total number of deaths from all causes was 1,050. The grand totals for transmissible diseases were as follows: ankylostoma 2,386, diphtheria 26, dysentery 1,433, gonorrhea 3,970, malaria 36,278, measles 63, mumps 2, pneumonia 1,005, scarlet fever 1, smallpox 691, syphilis 3,431, typhoid 116, yaws 89; total 49,506. Complete surgical, laboratory and meteorological reports are attached as well as 3,480 cases of diseases treated on the company's New York passenger steamships and 3,873 treated on its New Orleans passenger steamships. The Bulletin is illustrated and the appendix contains the general recommendations for improving the health and welfare of employees and passengers.

Diseases peculiar to the tropics are conveyed mainly by insects or through drinking water or food contaminated with human excreta. With protection from insects, a supply of good drinking water, wholesome food and efficient disposal of sewage, one is practically assured of immunity from most of these diseases.

The most prevalent diseases in the tropics are malaria and hookworm.

Diseases due to the bites of insects are:

From mosquitoes—malaria, yellow fever, dengue, phlebotomus fever and filariasis.

From fleas—plague.

From flies—Oriental sore and screw worm.

From lice—typhus fever and relapsing fever.

From ticks—relapsing fever.

However, almost any insect, especially flies, may contaminate food with the germs of typhoid, cholera, dysentery, infantile diarrhea, tuberculosis and other diseases through the mechanical action of conveying the infectious bacteria on their bodies.

(One gets the impression that this work of the United Fruit Company is extremely well organized and efficiently performed.—E. R. H.) United Fruit Company, General Offices, Boston, Mass.

✣

Illumination and Reaction Time.—Among the author's conclusions are these: "The differences in reaction time, in general, vary directly with the intensity of illumination."

"The minimum intensity of illumination required for maximum visual efficiency in reaction time is between 10 ft. c. and 20 ft. c."

Comments as follows: "In the case of tungsten light they show that 50 ft. c. is not as good as 20 ft. c. and, with the other kinds of light, anything above 20 ft. c. is practically wasted. In fact, there is so little gain for intensities above 10 ft. c. that this may be taken as the practical minimum intensity. It must be remembered, however, that this applies to the best possible conditions for seeing, i. e., where there is maximum contrast in the objects to be seen and all hindrances to vision are eliminated. Under less perfect conditions for vision it is reasonable to assume that higher intensities may be advantageous. Further experiments of the same kind will be necessary to decide this question."

"The most remarkable fact disclosed by this research is the superiority of mercury vapor light of the proper intensity to daylight at its best. This demolishes another tradition, that daylight is the 100 per cent perfect standard light, which can never be equalled by any artificial illumination. Science has again beaten nature at her own game."—"Industrial Lighting Briefs." No. 3, Bulletin 203 of the Cooper-Hewitt Electric Company, from Martha Elliott, *American Jour. of Psychology*, January, 1922.

Industrial Lighting in Theory and Practice.—Among important paragraphs is the following: "Utilitarian, or industrial lighting, requires the following positive properties: minimum reaction time, maximum visual acuity, ease on eyes and economy of operative cost, and the following negative qualities: absence of glare, freedom from obscure and sharply outlined shadows, and a minimum number of visible light sources."—E. L. Elliott, *Electrical Review*, Oct. 1, 1921.

✣

Practical Methods for Reducing Fatigue.—This is No. 50 of the series of Safe Practices Pamphlets, compiled by the National Safety Council, Chicago. The article gives a diagram showing the factors which cause fatigue, discusses the manifestations of fatigue, and then takes up the personal or individual causes of fatigue under a large variety of headings. The article is completely illustrated and is accompanied by a short bibliography. It should be read in the original by all who are interested. Copies may be secured from the *National Safety Council*, 168 N. Michigan Ave., Chicago, Ill.

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Important Bulletins Issued by Government Departments:

Occupational Hazards and Diagnostic Signs, Bulletin 306, **U. S. Bureau of Labor Statistics,** by Louis I. Dublin and Philip Leiboff.

Effects of Exposure to Low Concentrations of CO, by R. R. Sayers, U. S. Public Health Service, Public Health Reports, Vol. 37, No. 19, May 12, 1922.

Gas Masks for Gases Met in Fighting Fires, by Fieldner, Katz and Kinney, Technical Paper 248, U. S. Bureau of Mines, August, 1921, 61 pages. This Bulletin contains an important table entitled "Poisonous Doses of Industrial Gases and Vapors in the Air," which covers 33 common industrial gases.

Official Approval of Burrell Methane Indicator, by L. C. Ilsley, Serial No. 2367, U. S. Bureau of Mines, 2½ pages.

Mercury Poisoning, by R. R. Sayers, Serial No. 2354, U. S. Bureau of Mines, 8 pages.

Determination of a Relative Comfort of Mine Working Places by Means of the Katathermometer, by D. Harrington and G. E. McElroy, Serial No. 2355, U. S. Bureau of Mines, 7 pages.

Tannic Acid Method for the Quantitative Determination of CO in the Blood, by R. R. Sayers and W. P. Yant, Serial No. 2356, U. S. Bureau of Mines, 7 pages.

Compressed Air Illness and Its Engineering Features.—Few states have legislative measures protecting the welfare of men working in compressed air. Only three states—New York, New Jersey and Pennsylvania—have any laws regulating the hours of labor and the hygienic conditions to be observed in such work. Technical Paper 285, U. S. Bureau of Mines.

Disease and Accidents are Huge Cost Factors in Coal Mining.—"The experience of one coal-mining camp in Utah during the past fall well illustrates how effective a campaign may be waged against typhoid fever. This camp has a population of about 550 persons. During the period, September 7 to November 21, 1921, 37 cases of typhoid fever developed in this camp. Practically every case pointed to evidence that the water supply of the camp was polluted. Early in the outbreak steps had been taken to install a filtration and chlorination plant to purify the water supplied the camp. As soon as the plant had been installed and put in operation the outbreak ceased and not another case has since developed."—News Letter, U. S. Bur. of Mines (received April 28, 1922).

Occupational Diseases in California.—Included in the compensation statistics of the Industrial Accident Commission of California for the calendar year 1920 are 596 cases of occupational diseases, 5 being fatal.—U. S. Labor Review, Feb., 1922, p. 118.

✣

Physical Examinations of the New York City Department of Health.—In 1920, out of the total of 2,548 employees, 1,105 men and 1,443 women, about 275 men and 1,038 women, including both field and office workers, were examined. Reports for the past six years show a greater number of cardiac impairments among women than among men, and women showed persistently higher blood pressures than men, proving, the report states, that occupation as much as sex affects this condition. Women were also found to be more subject to anemia, low weight and low

blood pressure. A number of unsuspected cases of serious diseases such as diabetes, cancer and tuberculosis, were detected and given treatment. The writer, Dr. Maud Glasgow, comments on such factors as overindulgence in tea, coffee and other stimulants, unwholesome food, worry and nerve strain, as well as untreated disease-bearing centers in the body. Heredity, age, sex and environment are other factors than occupation which bear on physical impairments. Another point of interest in connection with the fact established by several studies that the morbidity rate between 15 and 54 is higher for women than for men, is the relation of income to sickness. A study showed that the family income is the most important factor in raising or lowering morbidity and mortality.—*N. Y. Health Dept. Monthly Bulletin,* Nov., 1921.

✠

Tuberculosis and Its Relation to Gas Poisoning.—A special report of the Chemical Warfare Service (Office of the Medical Division) under date of May 4, 1922, extracts from the report of Lieut.-Col. H. L. Gilchrist, Chief of the Medical Division, on "the after effects of gas poisoning," certain pertinent points. Every means was adopted to obtain true and reliable information, both in this country and in Europe, on the matter under discussion. The various groups represented in the inquiry were the Veterans' Bureau, Washington, D. C., where of 1,036 applications for compensation 554 were suffering from tuberculosis, of whom 125, or 22½ per cent, attributed their condition to having been gassed. Of this number a large percentage did not inhale enough gas to require medical treatment at the time. Of another group of 30 medical officers associated with government hospitals where 16,575 cases have been sent, however, only 5 were of the opinion that there was any relationship between tuberculosis and gassing. Similarly, only 16 per cent of replies sent to the different medical associations over the United States thought there was any relationship. The British views were: "Tuberculosis does not develop more frequently in gassed victims than in other subjects"; the French: "Judging from experience, it does not seem that lung lesions caused by gassing predispose to tuberculosis"; the German: "There are few remote effects resulting from exposure to warfare gasses and German physicians . . . agree unanimously that gassing has no connection with tuberculosis"; the Swiss: "Professor Stachlin of Switzerland searched through all the chronic diseases occurring among prisoners of war interned in Switzerland and with but few exceptions could not find any suffering from the results or effects of gas poisoning."

Among conclusions drawn are the following: 1. That a large number of individuals were undoubtedly substandard in the beginning and would quite probably have broken down under any stress or strain.

2. That the generally unknown effect of warfare gases has furnished many individuals a peg upon which to hang all manner of symptoms.

3. As to the incidence of pulmonary tuberculosis resulting from exposure to gas, it would seem that it is far from convincing that gas played any particular role in this connection and it is doubtful if the incidence of lung tuberculosis among ex-service men is much greater by reason of the part that gas played.

Charts show (1) the number of casualties occurring in each division of the army participating in the war; (2) the parts of the body affected by mustard gas; (3) age-group distribution of tuberculous lesions found at autopsies; (4) a summary of opinion of 33 doctors at government hospitals in regard to the different kinds of after effects, such as upon the brain, eyes, ears, bronchi, lungs, heart, tuberculosis, asthma, neuroses, effort syndrome, etc., and (5) a similar chart summarizing the opinions of certain doctors throughout the state. The final conclusion is: "There are two elements entering into this problem—one neurasthenic, where the men were gassed, usually very slightly, and believed sincerely that this was a factor in their illness, and, second, mistaken diagnosis in many cases, especially those following influenza, in which instances of unresolved bronchi-pneumonia occurred leaving nodular patches upon which the diagnosis of tuberculosis was frequently based on X-Ray plates."

✠

League of Nations Issues Industrial Welfare Recommendations.—The League of Nations has issued a pamphlet containing the recommendations of the International Labor

Conference which were adopted in October and November, 1921. Among these recommendations are several pertaining to public health. One would take measures to insure women wage earners before and after child birth. Another would prohibit the use of white lead and sulphate of lead and of products containing these pigments in the internal painting of buildings. A third would require compulsory medical examinations for persons under eighteen years of age employed on any vessel at sea. These recommendations are presented to the various members of the International Labour Conference with the expectation that each country will endeavor to secure legislation in conformance with that proposed by the Conference.

✠

Health Supervisor of Safety Institute.—The Safety Institute of America has secured the services of Dr. Charles-Edward Amory Winslow in the capacity of health supervisor. Dr. Winslow has been interested in industrial hygiene for many years, having given the pioneer course in that subject at the Massachusetts Institute of Technology in 1908, since which time he has given part of his time to teaching and part to research, with special attention to dust in relation to tuberculosis.

✠

Effect on the Eyes of Light Used in Making Motion Pictures.—The Department Committee on the Causes and Prevention of Blindness of the Ministry of Health in Great Britain reports that transient injuries to the eyes of artists in kinematograph studios have occurred, but that there is no evidence of permanent injuries from this cause. Unscreened arc lights are in their opinion liable to cause injury by reason of the unimpeded access of ultra-violet rays to the eyes, and the danger is increased according to the proximity of the lights and the duration of exposure.

The Incorporated Association of Kinematograph Manufactures, Ltd., comprising all the film-producing firms in England, is so much impressed by the evident danger to the eyes from unscreened arc lights that it has given its assurance to the Ministry of Health that no member of the Association will permit any open arc lights to be used in its studios for general illumination without glass filters.—Seventh Annual Report of the National Committee for the Prevention of Blindness.

✠

Coal Mine Accidents.—Accidents at coal mines in the United States during June, the third month of the strike, resulted in the loss of 92 lives, according to reports received by the United States Bureau of Mines from state inspectors. Revised figures covering the present strike period show 78 fatalities in April and 79 in May. The increased number of accidents in June as compared with May was confined largely to the bituminous mines of Pennsylvania and West Virginia. Based upon a production of 22,393,000 tons of coal in June, the fatality rate for the month was 4.11 as compared with 3.89 for May, 4.94 for April of the present year and 4.03 for June, 1921.

During the first half of 1922, 829 men have been killed by accidents at coal mines as compared with 1,001 during the first six months last year, a decrease of 172 fatalities or 17 per cent. The output of coal has declined 14 per cent, the fatality rates for the two six-months periods being 4.13 for 1921 and 3.97 for 1922 per million tons.

Gas and dust explosions continue to be the only conspicuous class of accidents showing a higher fatality rate for 1922 than for the first six months last year. The increase was in explosions caused by shot and by electric arc. No single accident in June killed as many as five men. The record for 1922 to date shows 7 major disasters in which 82 lives have been lost as compared with 3 disasters and a loss of 17 lives during the first half of 1921.

Reports made to the Bureau of Mines during the past nine years (1913-1921) show that an average of 203 men have lost their lives by accidents at coal mines during June. The output of coal has averaged 47,280,000 tons, thus indicating a fatality rate of 4.29 per million tons as representative of the month of June over the 9-year period. The rate for June, 1922, while somewhat higher than that for May, was lower than the rate for April, the first month of the strike, and also lower than the average rate for June for the nine years 1913-1921.

CONVENTIONS, CONFERENCES AND MEETINGS

This calendar is published through the coöperation of the National Health Council, 370 Seventh Ave., New York City. The Council will be glad to answer promptly any written or telegraphic inquiries regarding meeting dates in order to avoid conflicts.

August 22-25, National Medical Association, Washington, D. C.

August 23-24, Medical and Surgical Clinic and Public Health Meeting of the State of Maine, Lewiston.

August 28-Sept. 2, National Safety Congress, Detroit, Mich.

September 4-9, American Chemical Society, Pittsburgh, Pa.

September 6-7, Washington State Medical Society, Tacoma.

September 8-9, State Health Officers Meeting, Seattle.

September 11-16, National Exposition of Chemical Industries, Grand Central Palace, New York City.

September 17-21, National Conference of Catholic Charities, Catholic University, Washington, D. C.

September 24-29, American Hospital Association, Million Dollar Pier, Atlantic City, N. J.

September 28-30, Northwestern Tuberculosis Conference, Reno, Nevada.

September 28-30, New England Tuberculosis Conference, Poland Springs, Me.

October 9-11, Mississippi Valley Tuberculosis Conference, Milwaukee, Wis.

October 9-11, American Red Cross, Washington, D. C.

October 9-12, Recreation Committee, Atlantic City, N. J.

October 9-13, American Society for Municipal Improvements, Cleveland, Ohio.

October 12-14, Thirteenth Annual Meeting American Child Hygiene Association, Washington, D. C.

Oct. 16-19, Fifty-First Annual Meeting, A. P. H. A., Hotel Statler, Cleveland, Ohio.

October 16-19, Kentucky State Medical Association, Paducah.

October 16-18, American Dietitians Association, Washington.

October 18-20, American Association Railway Surgeons, Chicago.

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For further information write to Professor S. C. Prescott, Head of the Department of Biology and Public Health, M. I. T., Cambridge, Massachusetts.

October 23-27, American College of Surgeons.

November 1-4, National Association Practical Refrigerating Engineers, St. Louis, Mo.

Nov. 14-16, New York State Conference of Charities and Corrections, Albany, N. Y.

Foreign Meetings:

December 18-23, International Congress on Health Education, Paris.

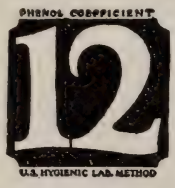
✣

Sanitary Dangers of Powder Puffs.—Streptococcus viridans, an organism found in a number of cultures from women's powder puffs, is associated with sore throats. Its discovery indicates, authorities say, the possibility of the existence of hemolytic streptococci or other pathogenic bacteria on the powder puffs. Hemolytic streptococci cause the most severe form of sore throat, tonsilitis, and are associated with heart lesions and kidney lesions. Among other findings were staphylococci, numerous spore-formers, molds, and other bacteria.—*Michigan Health News Service.*



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Vol. XII OCTOBER, 1922 No. 10

PUBLIC HEALTH EDUCATION*

(Chapter from the Forthcoming Report of the Committee on Municipal Health Department Practice)

PUBLIC-HEALTH education as a service of the municipal health department is still an ideal, rather than an accomplished reality. The fact that the health departments in 75 of the 83 larger cities of the United States are doing some work along this line shows that education is recognized as an important part of health service. But when it is realized that not more than 15 cities, chief among which are New York, Philadelphia,Chicago,Detroit, Boston, Buffalo, Akron and Flint, are really getting health information into the homes of their communities, the ideal seems far from consummation.

The fact that public-health service has developed so rapidly within the past few years may account in part for this situation. Growing cities, changing living conditions and new standards of health have resulted in almost constant expansion and development within the department, and it has been from necessity that the matter of health education has been left largely to the clinic physicians and the nurses.

Then, too, it is only recently that any definite attempts have been made to evaluate education methods. The work is still far from organized, and no doubt the smaller cities, and some not so small, have stood back waiting for some more opulent neighbor to do the pioneering.

ORGANIZATION

Health education is usually directed from the administration division, New York being the only city which has established a separate bureau for this service, and even here the work is very closely linked to the administration, and practically all publicity and educational activities closely supervised by the commissioner of health.

It is not surprising, then, to find that in the majority of the cities (40 out of the 52 where there is enough educational work to demand a head), the director is the health officer, and in practically all of these cities, he carries the work alone. In Milwaukee, Jersey City and Toledo the head of each bureau is responsible for the educational activities in his own field and the health officer merely supervises, while in Cincinnati the chief milk inspector shares the responsibility, and in Birmingham the nurses do much of the work.

Eight cities, New York, Chicago, Philadelphia, Detroit, Boston, Buffalo, Akron and Flint, employ an educational or publicity director. In New York, Philadelphia and Buffalo, this man is a physician, and is called director of health

*Prepared by Miss George Amundsen, formerly of the staff of the statistical bureau of the Metropolitan Life Insurance Company.

education, while in other cities he is a publicity man, with the title of director of publicity. An interesting phase of this situation is the close supervision exercised over the work by the health officer, who frequently writes many of the press stories himself, and prepares much of the copy which goes into the bulletins. This may be because the publicity directors are frequently not educators or trained in public health, but, as is the case in Chicago, Boston and Detroit, are ex-newspaper or publicity men. Apparently this publicity training when coupled with the public-health experience of the health officer is proving a good working combination.

PUBLICITY

Bulletins. Regular bulletins as media of publicity are published in 40 of the 83 cities under study, 8 in the first, 8 in the second and 24 in the third group. As is to be expected, the bulletin is a much more important institution in the larger cities than it is in the smaller ones, where in many cases it is little more than a monthly report of the vital statistics and morbidity. The majority of these bulletins (31) are issued monthly, two cities, Birmingham and Dallas, issuing them weekly, and 5, New York, Philadelphia, Detroit, Washington and Toledo, having both monthly and weekly publications. New York has five publications, while Chicago has a weekly, a press bulletin of 46 issues a year, and two special bulletins, 3 issues a year. The weekly bulletin is usually nothing more than a press sheet, as in Birmingham, where it is a summary of the work of the department, and Dallas, where it is a multigraph letter. In Detroit the department issues a regular monthly bulletin, and in addition a press sheet which is a part of the regular bulletin of the Wayne County Medical Society. This city, furthermore, issues a weekly multigraph bulletin which is distributed to interested health officials outside of Detroit as well as locally. Washington's weekly publication is a report of milk scores for dairy men and dealers, while in Toledo the health department has a few pages each month in the *Toledo City Journal* and also gets out a weekly publication of its own. In Denver the health department bulletin is published together with the reports of the other city departments.

The editions are small, ranging in the cities of the first group from 11,000 in New York to 2,000 in Boston. In the second group circulation ranges from 8,000 in Milwaukee to 85 in Washington. With the exception of Richmond, which has a circulation of 10,000 copies, the bulletins in the smaller cities seldom exceed 2,000 copies as in Dayton, or less than 200 as in San Antonio.

It is very difficult to tell who is being reached by the health department bulletin from the very general information at hand. It is sent to social agencies in 9 cities, to city officials in 11, to other health departments in 24, to physicians in 27, and to a general mailing list in 31.

Keeping in mind the fact that no city is circulating more than 50,000 copies (the total circulation of New York's five bulletins), it is evident that the bulletin has a very limited field as an educational factor. If its message is to reach the great body of unenlightened in its community, it must be relayed to them through the physicians, and the public-health and social-service workers who are its chief readers. About 33 per cent of the cities are sending their bulletin to all physicians, feeling, no doubt, with Dr. Woodward, former health commissioner of Boston (annual report for 1918), that the department bulletin is the only regular means of bringing the work and desires of the health department to the attention of the local physician, upon whose coöperation so much of the success of the department's work depends.

In 14 cities, the bulletin is being sent to the teachers and school buildings, in 5 to libraries, and in only 2, Milwaukee and Oklahoma City, to the factories and industrial plants. Even here it cannot be widely circulated.

However, there is an educational service which the bulletin is rendering to the health department itself which must not be overlooked. About 29 per cent of the cities are exchanging publications with those of other departments, and the health officials are of one accord that this is one of the most effective ways for their own departments to keep in touch with the progress of public-health work in other sections of the country.

On the whole, the bulletin does not seem to be reaching the great mass of people who are in need of health education. They are to be found in the schools, the factories and the homes, and it is unfortunate that the health department budget does not permit a large enough edition so that the bulletin can really be distributed in adapted form to the people for whom it could have a constructive message.

It is almost impossible to make any but an arbitrary classification of the 40-odd bulletins covered by the study, either as to material or as to bulletin policy. There are almost as many kinds of bulletins as there are bulletin editors, and each editor is working out his own idea of effectiveness. It is an unsettled question as to whether the bulletin shall be scientific, semi-scientific or popular; whether it shall be a health primer for the ordinary man and his family, a scientific treatise, a text-book for public-health workers, or a publicity organ for the department administration. We have examples of each and a few that are samples of all. It is a problem which each department is working out in its own way, and ultimately, no doubt, it may result in some uniformity of purpose and method. A few cities have definitely determined the place of the bulletin in their department work, and it is interesting to see what they are doing.

The New York City department gets out five regular publications, the *Monthly Bulletin,* 6,000 copies, the *Weekly Bulletin,* 11 copies; *Food and Drug Bulletin,* 6,000 copies; *School Health News,* 23,000, and *Staff News,* 3,500 copies. It is the policy of the department to make each periodical pursue the line of educational activity connected with the work for which that publication is issued. The *School Health News* discusses the subject of personal hygiene fully in each issue, and makes the material readable by the addition of new notes. This publication is addressed primarily to school medical inspectors, nurses and pupils. The *Weekly Bulletin* deals with the special undertakings of the department and its purpose is to create coöperation between the public and the department, and to acquaint the public with the reason for as well as the existence of various laws relating to health and sanitation. The *Monthly Bulletin* is the organ for the issuing of the scientific articles on public health, the result of special investigations and researches of the department, etc. It is addressed primarily to the public-health workers of New York and other cities throughout the country.

These bulletins do not pretend to have a popular appeal. But they are well handled and fulfill the purpose for which they were created. It is a policy of the department to place them only where they are actually used, and the mailing list is revised annually. There is a nominal charge of 10 cents per year both for the weekly and the monthly bulletin, the purpose of which is to keep the mailing list "live" and to be sure that the bulletin is going only where it is actually wanted and used.

The bulletin of the Philadelphia department is a good example of the attempt to popularize public-health information, and make it readable and interesting for the laymen. The bulletin varies in size, but averages about sixteen pages, is usually illustrated, and has from 8 to 10 articles on different phases of public-health work, written by members of the department in an easy, almost chatty vein. A single recent issue (May, 1921) included articles on the Development of the Mosquito, the Work of the

Division of Housing and Sanitation in Eliminating the Mosquito, Advisory Committee on the Use of Radium, Coöperation in the Teaching of Civics, the Division of Medical Service of the Philadelphia General Hospital, Hemolytic Streptococci in Relation to Scarlet Fever, and a report on the vital statistics for the previous month.

The Buffalo Sanitary Bulletin is a typical example of a "paragraph" publication, a little thin pamphlet containing short terse paragraphs, "healthgrams" and occasional verses. This type of bulletin is valuable as a popular follow-up for other educational work.

The Louisville Bulletin has found the health symposium effective, and each issue of its publication is confined to the discussion of a single phase of public-health work, as for instance the baby, infant mortality, prenatal care, diseases of infants, etc. This is undoubtedly the most consistent and logical way of presenting such a subject, and should be an effective educational medium provided it reaches the right public.

The Dayton department gets out a slim little "inside pocket" bulletin, which tells what the department is actually accomplishing in individual cases. The object is to acquaint the public with the health facilities in Dayton and to encourage it to make use of them.

The most common type of bulletin, however, is the statistical report of the department's work, with perhaps one or two articles on some important subject such as vaccination, milk or mosquitoes. This type, which is to be found in Baltimore, Newark, Fall River, Oklahoma City and practically all the smaller cities, has little educational value as far as the average layman is concerned, and we are not surprised to find that it goes principally to physicians, public-health workers and other health departments. It is questionable to what extent it interests even this restricted group.

It is rather interesting to find out that one objective stands out in all the bulletins, regardless of their policy in other matters, namely, to acquaint the public with the clinic facilities in their community, and to encourage them to make use of them.

It is impossible to give any accurate estimate of the cost of the bulletin. The expenditures for educational work are usually not separable from those of the administrative department, and in the few cases where we have figures, they cover the entire expenditures for educational service. In Chicago $3,000 is appropriated for the bulletin alone, Milwaukee has $5,000 for publications only. These figures are probably higher than the average, because both Chicago and Milwaukee have an unusually large circulation for their bulletins.

THE PRESS

It is evident that the health department has found the newspaper a valuable ally in its campaign of public-health education, for 62 cities are found to be using press stories, as compared to the 40 which have bulletins, and the 55 which are using lectures, exhibits, etc. The newspaper has the advantage that it reaches practically every home in the community, and well handled health articles in the daily papers will be read as hungrily as any other items of news.

There are three kinds of newspaper publicity—the health article, the feature story, and the news story.

The health article is a regular feature of the publicity campaign in 38 cities, including 7 of the first group, 10 of the second group and 18 of the smaller cities. In eight cities, it is used daily, 13 weekly, while in the remaining cities it is used irregularly, varying from several times during a month to infrequently, or whenever a seasonal menace or an epidemic makes a story necessary. Four cities, Minneapolis, Atlanta, Des Moines and Jacksonville, limit their use of the newspaper to monthly reports and very occasional health stories, while Scranton and Camden are said to break into print only when there is an epidemic.

In five cities these stories are prepared by the publicity director, in 39 by the health officer or his assistants, while in only six do we find that the bureau head alone, or some other member of the department, prepares these stories. In Atlanta, where the newspaper publicity consists of the monthly milk report, it is prepared by the chief of the laboratory, and in Newark, the mayor and the bureau heads write the health stories.

The special or feature story is less frequently used. Thirty-seven cities (five of the first, seven of the second and twenty-five of the third group), report that they do use them when they are available, but in most of the cities this is not frequent.

The Chicago department prepares stories for 140 daily and weekly newspapers in Chicago and vicinity, while Detroit has prepared and placed stories in Board of Commerce, medical and industrial publications. These are practically the only cities pushing the special story.

The news story is probably the best kind of publicity the health department can get, because it is certain to be the most widely read. However, it has disadvantages as well as advantages, because it is usually written and edited by people who are not scientifically trained, and who are primarily concerned in picturing the interesting, rather than the important facts.

Although it is probably true that the newspapers "cover" the health department in all of the cities studied, it is interesting to find that in 25 (4 of the larger cities, 2 of the middle group and 19 of the smaller cities), the department considers these news stories as valuable parts of their publicity campaigns. In Chicago, Boston, New Orleans, Providence, Columbus, Bridgeport, Springfield, Fall River, Lawrence and Flint, an effort is made to have daily stories, and in Chicago, Fall River and Bridgeport the health officer or publicity director, reports daily and gives out the news of the department.

Newspaper publicity, well handled, is a very excellent supplement for the bulletin. It reaches practically every member of the community, in a way which the bulletin could never hope to do even with sufficient funds. Further, it will be more universally read than the bulletin, for people who will not tackle a page full of type in any other form will read the daily newspaper thoroughly. And newspaper publicity is practically free. Thirty-four of the forty departments publishing bulletins are also using the newspapers, about half of them regularly.

Practically all of the 37 cities which state that they do not publish bulletins are using some newspaper publicity. In many of the smaller cities this consists chiefly of the monthly report of the work of the department and an occasional news story, but among the larger cities, particularly New Orleans, Kansas City, Portland, Providence, and Akron, the department is making the same use of the newspaper that it might of a bulletin, publishing health articles, feature stories and news stories regularly. Portland, where health stories are printed in the papers almost daily, affirms that "the newspapers, if friendly, are better than a bulletin."

Apparently the newspapers are friendly, and are giving hearty coöperation to public-health work, for there is every indication that the municipal health department gets all the space it needs for health articles and news stories. The *St. Louis Post,* for instance, prints a story each week lifted from the monthly bulletin; several cities comment that the reporters and editors gave them good write-ups, and Chicago, which is using the newspapers probably more than any other city, counts the local press its best ally, and in the commissioner's report for 1911-18 sums up the situation in this way: "The newspapers of Chicago have for years realized the news value of a good health story, or, putting it another way, the value of a good story from the health commissioner, and because this is

true, and also none the less in a spirit of willingness to help in a work which is being done for the public good, the daily papers of Chicago have always been willing to give generously of their space for health news."

LECTURES

Fifty-one of the seventy-four cities for which we had information reported that they gave some health lectures in connection with their educational campaign, but only 37 of these (6 of the first group, 7 of the second group and 24 of the third group) reported on the number of lectures during the period under study.

The lectures are given by the members of the health department before organized groups, such as school children, club members or social service workers. The usual practice seems to be to furnish speakers upon request, and the health department makes little or no effort to create its own audience and reach any specific group or class of people. In the smaller cities, and probably in the larger ones, too, the health officer delivers many of the lectures himself. Assisted by the members of his staff, he gives the health lectures in 29 cities, while in 22 they are given by bureau heads, physicians, nurses, sanitary inspectors, etc. In New York, Cleveland, Atlanta, Birmingham, and Dayton, the nurses give some of the lectures, while in Springfield, Lawrence and Lowell they give them all. The department physicians give lectures in New York, Cleveland, Washington, New Orleans, Omaha, Richmond and Youngstown, the school inspector in Louisville, the bacteriologist in Jacksonville, the sanitary supervisor in Schenectady and the laboratory director in Savannah. In no city do we find specialists secured for lectures on particular topics. Practically all health talks are given by members of the local department. The personnel of the speakers' bureau probably depends very largely on which members of the staff are good talkers and are willing to give their time to this kind of work, or upon what particular phase of health service the department is most interested in pushing.

The frequency of lectures varies widely from several hundred each year to none at all. New York, Chicago, Detroit, Akron and Flint, in this respect, as in other branches of public-health education, are leaders, and Indianapolis and Norfolk likewise are active. New York reported 499 lectures, given before industrial workers in Y. M. C. A. settlements, night schools, union headquarters and shops, while Chicago maintains a speakers' bureau which furnished 545 lectures for improvement clubs, civic, religious and other organizations in 1920; Detroit department members gave more than 400 lectures before industrial, social, church, school and medical organizations; Indianapolis averaged two lectures a week before civic organizations, teachers' associations, schools and clubs; Akron gave several hundred lectures, before mothers' leagues, schools, etc.; while Norfolk reports 200, and Flint 150 before schools, clubs, boy scouts and medical societies. Practically all of these lectures were given on invitation, which shows that the very active educational work being carried on in these cities has fallen on fertile ground.

Lectures were given on an average of once to twice a week in 7 cities, Milwaukee, Kansas City, Mo., St. Paul, Memphis, Nashville, Salt Lake City, and Kansas City, Kan., and from every two weeks to once a month in 12, San Francisco, Newark, Portland, Louisville, Oakland, Omaha, Birmingham, Richmond, Dallas, Grand Rapids, Schenectady and Savannah, and less frequently in 8, Pittsburgh, Jersey City, Denver, Toledo, Atlanta, Houston, Jacksonville and Oklahoma City, while in the remaining cities in which lectures were given during 1919 or 1920, no record was kept of the number, which would indicate that the work is not particularly well organized. In Philadelphia the public-health and school

nurses gave 47 lectures weekly in connection with work in the schools and health centers. Other lectures, number not stated, were also given by various members of the department.

As has been noted, the lectures are usually given before organized groups and it is impossible to tell, except in a general way, what public is being reached. We do know that New York, Detroit, Buffalo, Dallas and Flint gave lectures for groups of industrial workers.

Women's organizations seem to be actively interested in public-health work, and we find that women's and mothers' clubs requested lectures in 27 cities, and churches in 9, while 13 cities gave lectures before social and welfare groups and 11 before civic organizations, chambers of commerce, etc.

While the public-health message is reaching the children through the school medical inspection staff, lectures have also been given to school audiences in 23 cities, many of these no doubt in connection with regular school medical work. Very little effort is being made to reach the adolescent girl and boy. Syracuse, Newark, Dayton, Albany and Youngstown, however, have had lectures at the Y. M. C. A. Syracuse and Flint have done some work with the Boy Scouts, and in the former city there are special lectures and classes provided at the university.

Stereopticon views were used occasionally by 21 of our cities (8 of the first, 4 of the second, and 9 of the third group) during the period studied. Philadelphia uses them frequently at the health center and Dayton and Cincinnati both own some slides. Motion pictures were used in 18 cities, including Chicago, Philadelphia, Detroit, Boston and Buffalo of the first group, Newark and Portland of the second, and Omaha, Syracuse, Richmond, Dayton, Bridgeport, Nashville, Salt Lake City and a few others of the smaller cities. Eight cities, Chicago, Detroit, Buffalo, San Francisco, Newark, Dayton, Bridgeport and Norfolk each own a small footage of films. Usually "health movies" are not used very frequently except for special occasions, such as the health exposition in Chicago, and antiplague week in Flint. In Buffalo, movies are used daily in schools, while Norfolk used motion pictures about fifty times, Detroit fifteen to twenty times and Schenectady thirty times during the year studied.

EXHIBITS

Portable exhibits are owned and used occasionally by 26 departments (6 of the first, 6 of the second and 14 of the third group). In most of these cities the exhibit is small, but the department usually tries to have it on display at least once during the year.

Detroit's exhibit on different phases of health education was in use almost constantly, being displayed 40 times during the year. Chicago's birth registration exhibit was used twice, while San Francisco prepares an exhibit of photographs, charts, etc., which are placed in factories and industrial plants. Washington used its exhibit of venereal disease placards 7 times, probably in connection with a series of lectures given by the physicians of the venereal disease clinic, and Indianapolis secured an exhibit on child welfare from the University Extension division. Jersey City has an infant welfare and a milk display which it used twice, and Portland has an exhibit prepared especially for school children on communicable diseases, smallpox, measles and milk. Among the smaller cities Oakland has a vaccination exhibit which is used annually, Birmingham an infant welfare exhibit which was used six times in 1920, Richmond used an exhibit twice on infant welfare, privies, vital statistics and laboratory work, and Nashville displays its infant welfare, child hygiene, prenatal service, tuberculosis and venereal disease annually at the state fair. Norfolk has made up an exhibit showing the work of the department which was used twice; Flint's child hygiene exhibit was used in connection

with a civic exposition, and Jacksonville displayed its typhoid exhibit once; Savannah displayed milk and malaria twice. Trenton, N. J., has recently purchased a large photograph and chart food exhibit which had not yet been used when this study was made.

Philadelphia has no portable exhibit, but has a permanent child welfare display in the health center; Cleveland has a small display principally of spot maps.

Several departments have no permanent displays, but make up exhibits for fairs, campaigns or other special occasions. San Diego, for example, arranged an exhibit for infant welfare work, the Houston department plans to have some sort of health exhibition each year at the Houston fair, while Louisville prepared an interesting display on better sanitary conditions, extermination of mosquitoes, water purification, etc., for the Kentucky state fair, and Spokane reports that it has prepared such material for the interstate fair for several years.

Twenty-eight cities also have some graphic displays in the department office, while in nine cities, Pittsburgh, Milwaukee, New Orleans, Akron, Syracuse, Memphis, Camden, Kansas City, Kan., and Oklahoma City, the office exhibit is the only material of its kind used. In a number of cases, notably Cleveland and Trenton, the office display consists principally of spot maps on infant deaths, communicable disease, etc.

Although a good exhibit is considered by many to be one of the very best methods of spreading public-health information, particularly on such subjects as personal hygiene and city sanitation, etc., it is not surprising to find that the health departments are not pushing it. An exhibit is an expensive thing to prepare, and it is difficult to keep it looking fresh and attractive, especially if it is used frequently and has to be moved from place to place. Practically all the state departments have excellent exhibits which can be secured with much less money and trouble. A few of the cities studied said specifically that they used the state exhibits, but it is probably true that many more of the smaller cities avail themselves of this material.

VOLUNTARY AGENCIES

Voluntary agencies are supplementing the educational work of the health department in 33 cities. The most active of these agencies are the Red Cross and the antituberculosis associations. The Red Cross is doing active work in the schools on the subjects of hygiene, food selection, etc. Newspaper publicity is obtained in 14 cities, Canton, Oklahoma City, Akron, Indianapolis, Kansas City, Mo., Washington, Cleveland, Detroit, Philadelphia, Lynn, Norfolk, Flint, Milwaukee and Youngstown, by the Red Cross. Antituberculosis associations and leagues are providing lectures, exhibits and newspaper publicity in addition to their nursing service, etc., in 18 cities, including Jacksonville, Memphis, Richmond, Birmingham, Providence, Indianapolis, New Orleans, Cincinnati, Buffalo, Cleveland and Detroit. Much of the antituberculosis educational work is being done in the schools by these agencies, as in Hartford, Oakland and Cincinnati.

In San Diego we find the Parent-Teachers Association holding weekly meetings at which the small children are weighed and measured and lectures are given on the care of the child. In San Francisco the well baby clinic provides lectures and gets out publications. The Hartford Baby Hospital has prepared exhibits on baby saving.

The work of the visiting nurses and public-health nursing organizations is often linked up with educational work. In Louisville, Indianapolis, Kansas City, Mo., Buffalo, Philadelphia, Bridgeport and Omaha these organizations are doing some educational work together with their nursing service.

In a number of cities the civic associations have taken an active interest in public education. In Omaha and Des Moines, the Chambers of Commerce do

helpful work. The Nashville Rotary Club brings in health lecturers; the San Francisco Association has made a study of tuberculosis, and has posted placards and issued publications on this subject; Philadelphia has two housing associations and a bureau of municipal research which have taken a hand in health education.

In the cities of Savannah, Jacksonville, Richmond, Norfolk, Omaha, New Orleans, and Nashville women's and mothers' clubs have interested themselves in public-health work. Usually the club has a public-health committee which coöperates with the health department in campaigns, etc., or uses its exhibits or lecturers. In Richmond the Federated Mothers' Clubs have courses in the selection and preparation of food for children, and in Norfolk the mothers' and housewives' leagues have lectures, prepare publicity and issue a monthly journal.

Other voluntary agencies are at work also, such as the King's Daughters in Flint, which gives nursing service and also does educational work, the Society for Cancer Control and the health committee of Wayne County Medical Society in Detroit, a school lunch association in Indianapolis, etc. In Salt Lake City the State University Extension Bureau has given lectures on a variety of subjects, including general public health, prenatal and postnatal work, infant and school child welfare and the control of the water and milk supply, etc., while in Youngstown the state has distributed venereal disease literature in shops and factories. These are examples of numerous voluntary activities, selected more or less at random.

As can readily be seen from this very brief survey, many of the cities have a variety of agencies interested in health education. Apparently a good coöperation exists between the different agencies, and also between the voluntary agencies and the health department. In several cities, especially the smaller ones, practically the only educational work done is by private agencies. This is true in Canton, Camden and Des Moines and perhaps to a lesser degree in Providence, Savannah, Washington, Pittsburgh, Columbus, Lynn and Hartford. Much of the activity of private organizations has, of course, been inspired and stimulated by the municipal health departments.

TRAINING OF WORKERS

An aspect of public-health education that is badly in need of development is the training of the public-health workers themselves. Thirty-three cities have facilities more or less adequate for the training of public-health employees. About half of them have what might be termed regular courses, that is, courses with prescribed curricula, regular class periods and credits for work done. The health department training usually consists of lectures, daily or two or three times weekly by members of the staff. Such courses are found in Chicago, Detroit, Indianapolis, Portland, Atlanta, Dallas, Bridgeport, Salt Lake City and Jacksonville. These courses may or may not give the students credits, but they are held regularly, and in most cases are required for certain classes of employees.

In Pittsburgh, Buffalo, San Francisco, Jersey City, Newark, Louisville, Paterson, Omaha, Norfolk, Flint and Oklahoma City, the department gives lectures for its employees, chiefly for the nurses, but does not have an organized course. In several cities each bureau head gives his own employees individual instruction and an opportunity to do field work, but this can hardly be called definite training. Its adequacy depends too much on the individual bureau head and the pressure of work in that division.

A number of the departments use the facilities offered by some local hospital or university for the training of their personnel. Philadelphia depends upon the public-health courses offered by the University of Pennsylvania, Cleveland on Western Reserve University, Nashville on the Peabody College course for

nurses, Akron on a course in public health in its municipal university, while St. Louis, Hartford and San Diego have public-health courses in their local hospitals. In Lynn and Flint, the Red Cross has provided home and public-health nursing courses. Employees of the Albany department attend the sessions of the state health officers' school.

In Philadelphia the health department nurses are given a post graduate course in contagious diseases, and the sanitary inspectors are required to attend classes at the University of Pennsylvania. The University also offers a course of lectures in public hygiene and the department employees are given time off to attend these classes. At the end of the course the students prepare a thesis on the material covered and a credit in efficiency is given for the six best papers.

The method followed in Chicago is interesting. The department of health maintains a public-health school known as the Chicago School of Sanitary Instruction. The following is from the prospectus: "The Chicago School of Sanitary Instruction is maintained in connection with the department of health of the city of Chicago for the purpose of educating the Chicago public in preventive medicine, for the instruction and training of the employees of the department of health, for giving courses of instruction in public-health work to regular matriculants, and for the dissemination of information to visitors and coworkers in the field of preventive medicine. The school was incorporated, not for profit, in 1907, under the laws of the State of Illinois."

All probationary employees in the department are required to take certain courses, and may take the others if their hours of work permit. The courses cover the rules and organization of the department, the Sanitary Code, transmission of communicable disease, and field work, inspections, scoring, etc. Supplementary courses are given in each division by the division head and his staff. Monthly meetings of the bureau chiefs and their assistants are held for the discussion of current health topics, monthly conferences between the bureau heads and the heads of divisions and supervisors, and monthly meetings of the division heads, and supervisors with the field forces. This is required in each bureau.

In the fall of 1919, when the second epidemic of influenza was menacing the city, the health commissioner was instrumental in the organization of a brief course in home nursing. This course is run in connection with the health department, and the department doctors and nurses coöperate in the training.

At present 61 per cent of the larger cities of the United States have no means of training their health department employees, but as public-health work develops more training opportunities will open up, as individual departments have the time and money to give regular courses for their own employees, and within another decade, it is to be hoped that this situation may be greatly improved.

EXPENDITURES

There is very little information on the cost of health educational work. In the majority of cities this service is paid for out of the budget of the administration division, or the funds are drawn from some other bureau as they are needed, and no specific appropriation is made for educational work.

The salary budget ranges from $4,000 in Detroit to $900 in Akron. The other items, chief among which is printing, average $2,980 for the first group (figures on five cities), $2,980 for the second group (figures on 2 cities), and $1,482 for the third group (figures from 12 cities), and for the entire group $1,902. In the 22 cities for which it is known approximately the amount that is spent, the per capita cost for health education is $0.0048 or .0038 for the first, .0069 for the second, and .011 for the third group of cities. Probably the largest item of expense is the bulletin, but the cost fig-

ures for it are not separable from the educational work, and it is difficult, therefore, to determine how much the departments are spending on it. As public-health work is organized at present, it is not a costly activity. Newspaper publicity, which is the larger part of the work in many of the cities, is virtually free. The lectures cost the department almost nothing, and after the initial expense, exhibits cost little.

In the light of these facts the public-health education work of municipal health departments may be summed up as follows: In 80 per cent of the larger cities of the United States health education is a very incidental part of the work of the municipal health department. Less than half of these cities publish bulletins, and in these its role is to keep health and social workers and city officials in touch with the work of the department, and to publish the vital statistics. As a direct channel of health education to the average layman the bulletin is of negligible value because its distribution is so limited. There is no standardized bulletin policy. Each department is seeking to make its own publication fill the individual needs of that department.

About half of the cities are making the most of the publicity opportunities offered by the local newspapers.

The number of health lectures given in a community is a pretty fair indication of the interest which the community is taking in public health. These lectures are given on the request of groups of citizens, requests which grow out of a wholesome interest in the subjects. The cities which have pushed their education campaign have very successfully aroused public interest and are giving anywhere from one to five hundred or more lectures a year.

The money spent on health education is small in comparison to that spent on other health service; however, this is only a partial indication of the status of educational work. A good deal of very effective work can be carried out on a very small amount of money because of the active coöperation of newspapers, business men and social agencies. The fact that the activities of the health department are for the general good of the community makes it possible for the department to ask for, and receive, free advertising, free publicity and free service of many kinds. However, in the cities where the work is pretty well organized, the directors feel that their efforts would be much more effective if they had more money to spend.

The health departments are doing a good deal of educational work with the younger school children, but relatively little with the adolescent boys and girls, and still less with industrial groups.

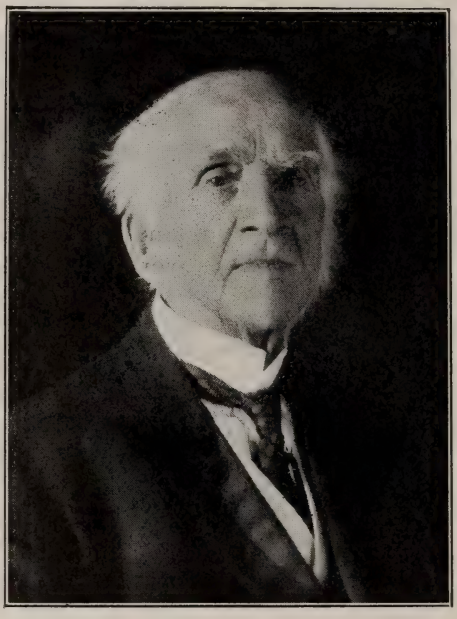
Private agencies are supplementing the departments' work in specialized fields, particularly in tuberculosis, and general health instruction such as is the scope of the Red Cross.

This is the beginning, not the end of the story. Muncipal health departments realize that it is as much their obligation to clear up man's ignorance and to teach him to live hygienically as it is to care for the bills he has contracted by this ignorance. Health education should grow as other health services have developed, and within a few years should be more nearly on a par with the other activities of a well organized health department.



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Stephen Smith, M. D., Sc. D., LL. D.

Founder and First President
American Public Health Association

Born, February 19, 1823

Died, August 26, 1922

STEPHEN SMITH
1823-1922

STEPHEN SMITH is gone. Of the many hundreds of his friends and colleagues who witnessed with admiration and pleasure that astounding spectacle of physical and mental vitality displayed by the Grand Old Man of Public Health at the Semicentennial meeting of the Association last November, there was none who was not "pulling for" him (no other phrase is so expressive) to round out his century of fruitful living and add to it many more years of health and vigor. At that time, when he was within a few months of entering his one hundredth year, the prospect of this happy consummation seemed favorable. But it was not to be. There is disappointment that death has cheated him in his brave race, within sight of the goal. But it is swallowed up in the great sense of loss which all must feel who knew him and worked with him for the cause which lay so near his heart.

Dr. Smith died at four o'clock in the morning of Saturday, August 26, aged 99 years, 6 months and 7 days, in the home of his daughter, Mrs. Walter C. Mason, at Montour Falls, near Elmira, New York. He had been gradually growing feebler during the last few months, and death was due to general debility, rather than to any organic condition. Funeral services were held at Skaneateles, New York, his old home, on Tuesday afternoon, August 29. Large numbers of friends and neighbors were present, as well as prominent sanitarians and welfare workers. Dr. J. W. Trask represented the United States Public Health Service; Dr. F. W. Sears, the New York State Department of Public Health; Dr. A. Blauvelt, the New York City Department of Health; Dr. R. W. Hill, the New York State Board of Charities, of which Dr. Smith was president until his ninety-fifth year; and A. W. Hedrich, the American Public Health Association.

It is unnecessary to recount here in detail the story of Dr. Smith's life, with which every one has been familiar since the Semicentennial celebration. Dr. Ravenel's article in *A Half Century of Public Health* will long remain the standard biographical reference. In the JOURNAL for December, 1921, was published a partial account of the Stephen Smith banquet, including his address, at the Hotel Astor, November 16, 1921, which no one who had the good fortune to be present will ever forget. Since that time Dr. Smith has been kept in the public memory by the conferring upon him of the honorary degree of doctor of science by Columbia University, of which he was, with one exception, the oldest living graduate. The annual commencement exercises when this occurred were made noteworthy by the fact that Dr. Smith walked in the academic procession and was present throughout the ceremony.

SCHOOL HYGIENE UNDER BOARDS OF EDUCATION

THOMAS E. FINEGAN, PH. D., LL.D.,
State Superintendent of Public Instruction of Pennsylvania.

Read before the Conference of State and Provincial Health Authorities, Washington, D. C., May 15, 1922.

IN the consideration of this subject I should like to present it from three aspects. First, the general plan under which the subject has developed throughout the country; second, the possibilities of what may be accomplished for future generations through a proper system of health instruction in the schools; and, third, the sound course of practice and procedure to be followed if desired ends are to be attained.

Health instruction has an historical background which should be critically examined. This will reveal the absence of a sound plan and the failure to accomplish results. Many of us who are here this morning may be able to recall our own experience when we were students in the public schools and were taught and required to study the subject of physiology. The recitation was named the "Class in Physiology." We used as a text book in the preparation of our lessons and in reciting them this text book on "physiology." We committed to memory the names of the important organs of the human body and their functions, the names of the chief muscles and nerves in our systems, the number and names of the bones in our bodies, and we spent hours in an endeavor to describe the greater and the lesser circulation. These tasks gave us as many troublesome hours, if not more, than we were given in learning the multiplication table.

Physiology was one of the first subjects in the field of health to be given a place generally in our public-school program, but it was treated from the technical viewpoint and not from the position of the practical service that might be gained from a careful study and observance of the simple fundamental principles of health. The subject, however, was of such practical value that it was bound to be gradually modified, simplified and broadened. Physical training, play and recreation were included. The undernourished child, the mentally deficient child, the relation of health to study became phases of school work which were given consideration in the class room.

The control of contagious and infectious diseases were found entirely feasible through the schools and was undertaken. Through our experience it was further discovered that if children were to be able to obtain the full benefits which the organization and maintenance of schools intended they should receive, conditions in many of the homes should be remedied. Thus there has gradually developed within the functions of the public school a great and important field of health service. It embraces work under the direction of instructors, nurses, dietitians, physical trainers, medical inspectors and mental hygienists.

Broadly speaking, the children of the nation attend the public school. In this great democratic institution our 22,000,000 to 24,000,000 boys and girls of today are preparing for citizens of tomorrow. The experiences of all civilized nations show that the economic, industrial, or political service of a citizen is measured in a large degree by his physical condition. It is a matter of first importance, therefore, that every school shall include in its program that instruction and training in the fundamentals of health which shall give boys and girls natural physical development, sound, strong bodies, and impress upon them the importance of observing those fundamental rules which are essential to good health.

If health work in the school is to be made practical and effective, it must be

given its place in the school program. It must receive the same regular, scientific and pedagogical consideration that any other subject which is placed in the curriculum receives. If the results aimed at are to be obtained through health instruction, this subect must receive the same consideration that is given to reading, numbers, history, English or any other subject. It is important that the child himself in the public school should look upon instruction in health with the same consideration that he regards any other subject in the school.

Every pupil expects to do his work in English, in numbers and history. He expects to make such tests and pass such examinations as are prescribed for these subjects. It is just as important that the child shall understand that he is to have a health examination and that he should be successful in this examination as that he should succeed in any other examination. The whole attitude of the school should be to impress the child with the thought that it is just as unfortunate to fail in his health examination, or to be below par in his health rating, as it is to fail in any other subject or to be below the standard prescribed for successful work in that subject.

Until we can establish this psychology in relation to health in the schools, until we can have the hearty coöperation of all the forces which are related to this field of education, and until fathers and mothers and the public generally support this theory, we shall not be able to accomplish the great objectives which are sought under this instruction.

There is no pedogogical reason why the fundamentals of health shall not be taught from the time the child enters the first grade until he completes his public-school course. The subject may be presented in simplified form in the first grade. The fundamental lessons of health observance and practice should be inculcated in the child's mind during his first year in school. The course of instruction should be graduated as the child advances each year throughout his school life.

We must correlate the health work in the schools as other work has been correlated. At one time civil government, history, geography, and economics each constituted an important subject in the public-school curriculum. They were regarded as separate and distinct subjects, whereas, as a matter of fact, they were so interrelated and each had such bearing upon the other, that the greatest benefit could not be obtained from the study of these subjects unless each was considered in its relation to the whole social study of mankind. In modern courses of study, therefore, we find the social sciences, or work relating to civics, history, economics, geography, each presented at the proper time and in its correct relation to the others.

The same is true of vocational education. In this field are to be found home economics, agricultural work, industrial and vocational courses. We have learned from experience that we must consider each of these great divisions of vocational education in its true relation to the others, and that the whole field of vocational education must be considered in its relation to other subjects and courses.

If the best results are to be obtained in the field of health instruction, and if economy is to be practiced, it is necessary that we combine into one field all phases of health work. Each has its relation to the other. We must, therefore, consider in this field, play, recreation, physical education, the under-nourished child, the mentally retarded, the relation of the school to the home, the work of the school nurse, the examination of the physical defects of the child and such remedial and follow-up work as may be necessary, and instruction in general in the fundamental processes which must be observed and practiced in order that the children may develop into physically sound men and women.

There is no subject of more vital importance to the children themselves and

to the public at large than health instruction. As proof of this I call your attention to the annual report of the United States Secretary of War for the year immediately preceding the entry of America into the Great War. During that year about 130,000 young men applied for admission into the army. After these young men had taken the final examination prescribed by the authorities of the War Department, less than 25,000 satisfied the physical standards prescribed by that department as essential to become effective soldiers and, therefore, be admitted to the Army. This situation is a serious reflection on our civilization and upon the effectiveness of the instruction and training of the public-school system of the country.

There are now many agencies endeavoring to render service in this great field of health instruction. The situation is such that there must be unswerving patriotic consideration of the subject by every interest that is related to the entire field. In addition to public-health departments and education departments there are many organizations, such as child-health organizations, child-welfare organizations, parent-teacher associations, anti-tubercular societies, public-health societies, the Red Cross, and other organizations which must recognize the legal responsibility of the school authorities who are responsible for the administration of the schools. They should coöperate with such authorities. Many of these organizations are in a position to render valuable assistance to the health and school authorities. They may develop public sentiment which will give support to an effective health program. They can make direct contribution to the administration of such a program. They should do it, however, under the leadership and direction of the properly constituted legal authorities in charge of the schools.

There is more or less of a conflict between state and local health authorities and state and local education authorities as to who shall administer health work. I have had experience under both plans. It was my privilege to work on the state education department of one of the great states of the Union for several years in which the health work was under the direction of the educational authorities. I have more recently worked in a state where the medical inspection is under the direction of the health authorities, and the other provisions of the health program are under the direction of the school authorities. Neither of these plans in satisfactory, and neither yields the results which should be obtained from the administration of a modern, progressive health program.

The educational authorities should recognize without further delay that the health authorities of the country, state and local, have an organization and possess certain practical and scientific information which is absolutely essential in the proper administration of a health program in the schools. The school authorities should recognize at once that the health authorities must be given a vital and effective part in any health program. The most satisfactory and effective results cannot be obtained without the service of the health authorities.

There should be a coördination of the administrative authorities of government which have an official or professional relation to this great subject.

We should, therefore, have in each state a state school health council. This council should consist of the governor of the state, the state commissioner of health and the state commissioner of education. This council should prescribe the minimum health standards which should be observed by and administered through the schools. Having determined what these professional and legal standards should be, the administration of the work should be placed under the authority of those responsible for the administration of the schools. It is possible for these

three state agencies to agree upon an effective, modern, scientific program of health work for the schools without infringing upon the rights of the health authorities or the school authorities, giving to each its proper function in the service, and rendering that service more economically and efficiently.

We may as well recognize at once, the health authorities and the school authorities, that the program of health instruction in the schools has been neither satisfactory nor effective. If there is a school administrator anywhere in the country who tells you that effective and satisfactory work is being done in this field, he is not properly informed on the subject. If a state health administrator tells you that his state has a strong and effective program of health education, he, too, is not properly informed.

One of the main reasons why there is not an effective program in health instruction is that there is not an adequate supply of trained teachers in school health. We need not expect as good results in the teaching of health as we obtain in the teaching of arithmetic, English history, or other subjects until there are health teachers as well trained and qualified to teach health as are the teachers who teach the other subjects. It is important, therefore, that a program for the training of health teachers should be entered upon at once in every state in the Union.

No person in America should be issued credentials under the seal of authority of any state to instruct boys and girls in the public schools who has not been trained to teach children the fundamental principles of health practice and observance.

It is possible to give every student in a state normal school the training which I have stated is essential for a successful public school teacher. Every teacher should be trained so that she may generally determine the ordinary physical condition of the child. She should be able to reduce to a minimum the work which the supervisor of health is required to perform. She should be able to determine many of the physical defects existing in children, without the aid of the medical advisor. Generally, she should be able to determine from the conduct of the pupil whether or not he is physically able to do his work. Teachers may do this without having undue burdens imposed upon them.

There must, of course, be an adequate supply of properly trained health supervisors, men and women of broad training and vision, who understand the principles upon which health is maintained and who can give general direction to the administration of the work which is essential from an economic and professional standpoint.

Those of us having official relation to this program should forget our self-interest and consider rather the needs and interest of the 22,000,000 to 24,000,000 boys and girls in the schools of the country.

Our obligation is to devise the best plan, and to administer it, in the most satisfactory and efficient form which will give to these boys and girls the training and education not only to develop strong, sound bodies during the days of their school life, but to have an intelligent appreciation of such great asset and to be prepared to take the best possible care of such bodies. To accomplish this result we should formulate a plan upon the following lines:

1. The establishment of a state school health council consisting of the governor, the commissioner of health and commissioner of education.

2. These officials should prescribe the outlines of a plan to be administered, specifying what standard should be observed and the general method of administration.

3. Authorities in charge of the schools should be vested with the administration of this work.

4. There should be an adequate plan for the training of health teachers and

supervisors in every state. No teacher should be certified to instruct children who is not competent to give instruction in the fundamental practices of sound health.

5. The subject of health should receive the same consideration in a public-school program that is accorded English, numbers, history, or any other subject.

6. The term "health" should be emphasized in dealing with this whole subject in the schools and in the home.

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SCHOOL HYGIENE UNDER BOARDS OF HEALTH

S. JOSEPHINE BAKER, M. D., D. P. H.
Director, Bureau of Child Hygiene, Department of Health, New York City.

Speech before the Conference of State and Provincial Health Authorities, Washington, D. C., May 15, 1922.

AS I look back upon my twenty years of service as an officer or an official of some sort in a city health department, it seems to me that one of the earliest things of which I have any recollection is the discussion whether school medical inspection should be under the supervision of boards of health or boards of education. I have an idea that the discussion antedated even that time, but I can safely say that we have been debating this subject for at least twenty years, and we seem to be no nearer a conclusion now than we were when we started in.

I came here this morning with the idea of hearing Dr. Finegan express himself about the actual administrative field of his work as it is carried on under boards of education, and I took it that my part would be to discuss it as it was carried on under boards of health, and that we might have some sort of debate on the subject. I find myself, however, in the position of having no debating material, for I do not think that anyone here, including myself, can possibly disagree with anything Dr. Finegan has said in regard to school children needing health instruction, and this type of health instruction must come in and from the classroom.

It seems to me, however, that there are two parts to this question of school-health supervision, one the actual teaching of health, and the other what we have called "school medical inspection," or what I prefer to call "school-health supervision." Both might be drawn together under the general term "school hygiene," although, after all, a literal construction of that term would seem to make it a part of the whole system. I agree, and I am sure all of us can do so, with the fundamental idea that Dr. Finegan has brought out that this work, to be done properly, must be carried on in a coöperative manner, that is, the the teaching of health and health supervision must come together and be considered as a unit. Until health boards and boards of education work in harmony, we will never be successful in our efforts and the children will not get a square deal. I think our main trouble in the past has been, or at least it has seemed so to me, that neither side was willing to go half way and that each side wanted the undivided supervision of all parts of the work. In places where I have observed school-health supervision being carried out as a coöperative work, it has seemed to me fairly successful, though not so successful as it might be; and this lack of success has been due, I believe, not so much to the fact that the authorities do not work harmoniously together, but, rather, according to the impression I received, that neither side realized its great importance.

In addition, Dr. Finegan, during his talk, used a statement which might

have been in my remarks, when he stated that the ultimate responsibility for health must rest with health officials. It would seem as though I were going to agree with him all the way, but there are some points of difference.

In order to have a clear understanding of school-health supervision as it exists today, I think we must go back a little and understand its evolution and what the basic idea is back of it now. Probably you are all quite as familiar as I am with the fact that school medical inspection was started first in Boston by Dr. Durgin, who was then Commissioner of Health. It was the result of an epidemic of diphtheria which occurred in the Boston schools, and Dr. Durgin felt that if he put doctors in the schools he might be able to stamp out the epidemic at its source. The result was sufficiently conclusive to warrant keeping the doctors in the schools thereafter to inspect the children in order to determine whether or not they had an infectious disease. This occurred in 1894. In 1896 Philadelphia instituted a similar system, and in 1897 New York City followed suit.

For many years the idea of inspecting children in the schools to detect infectious diseases was all there was to school-health supervision in this country. In 1905 New York City became convinced that this inspection of children to determine whether or not infectious disease existed was not a comprehensive public-health problem at all. A more thorough knowledge of the causes of infectious diseases showed clearly that mere exclusion from school of children so affected was not enough. We may assume, I think, without discussion, that occurrence of infectious diseases depends upon two factors: presence of germs and resistance of the individual. We have found also that one of the main features of our public-health program is to prevent disease by building up the health of the individual in such a way that he may be sufficiently resistant towards diseases of all kinds.

In such a program we must take into account the environment of the person, and in the case of the school child this means the school and the home, with all that is concerned in the broad problem of hygiene and sanitation. In other words, if we are going to do anything for the health of the child, we have found that it will be necessary to conserve that health in every way that we can, first by seeing that the school is a wholesome, decent and proper place in which to keep the child during its school hours, and second that the home life of the child is so adjusted that proper conditions of sanitation and hygiene will conserve its health, and third, that the child himself shall be examined physically at sufficiently frequent intervals to determine the condition of his health, the best means of correcting existing physical defects and the best means of preventing ill-health in the future. So, in 1905, New York City began a system of work of this kind, and at the present time school medical inspection, as we understand it, includes not only inspection for infectious diseases but also physical examination of the child, consideration of the school and home hygiene, and latterly we have also included health education of the child himself and the establishment of special classes to care for children who have special types of ill-health.

Our modern point of view, however, includes more than this, for we are convinced now that if we are to build up sound health in childhood, it is not enough to supervise the child during the hours he is at school, or even the school child during the hours he is at home, but that the only way in which we can assure child health is to begin during the prenatal period and carry our work through the natal, posnatal, preschool, school and adolescent periods of child life. We know now that the health of the child in the preschool age bears a most important relation to its health during school life, just as the prenatal period

bears an important relation to the health of the child during infancy.

To go back, however, to the consideration of school medical inspection as it is carried on today, I may say that when we in New York City instituted the work of physical examination of school children, we were doubtful whether or not we ought to embark upon what was then an almost unheard-of procedure in preventive medicine. We, therefore, took up the matter with the school authorities of this city and asked if they were prepared to make the physical examinations of the children. They assured us they were not and wished us to do it. Since then the work in this city, at least, has remained under the Board of Health. The fact that it has not remained entirely under boards of health everywhere is an interesting sidelight, in my opinion, upon the failure of health departments in general to understand the full extent of their responsibility to the public.

In considering the type of government under which we live, we find that it is mainly one based upon function; that is, in the Federal Government we have a War Department, a Navy Department, a Department of the Interior, a State Department, a Department of Labor, etc., each dealing with a specific governmental function. So in our states and in our cities, we have our government divided in this functional way. In our cities, for instance, we find these divisions more detailed, and we have fire departments, police departments, health departments, street cleaning departments and departments of education—all matters closely affecting the life of the community, but each department covering some definite and specified function, each one with its constitutional powers, which it must exercise and be responsible for.

It has seemed to me that there has always been a tendency on the part of every department in every part of our government to try to absorb some of the functions of other departments. Why this should be I cannot understand, because each department has within itself a sufficiently responsible relation to the community to absorb all of its time and interest. For this reason it would seem to be the responsibility of the health department to do whatever it can to promote the health of the community at all times and at all ages. In other words, no health department which is performing its functions fully can possibly say, "We will be responsible for the health of the community up to five years of age, and then we will turn the responsibility over to some one else until the individual child is fifteen years of age." I cannot conceive that any health department should be allowed to do this, even if it wished to, and I think that Dr. Finegan will agree with me that the function of the department of education is education and not health, and that the function of the department of health is exactly what its name implies. The main argument for putting such work under boards of education has been expediency, that is, boards of education have been far better equipped to deal with the matter, particularly in small towns and rural communities, than boards of health have, and the result has been that we have confused methods with fundamental principles.

You probably all know Dr. Hastings of Toronto and perhaps some of you are acquainted with the interesting experience he had some years ago with regard to this very subject. If Dr. Hastings were here he could tell you the story much better than I can, but I think I can relate it in a manner that is essentially correct. Dr. Hastings is, as you know, the health officer of the City of Toronto. The school work in that city had for many years been under the control of the board of education. It had been exceedingly well carried out. I think no one has ever criticised its efficiency for a moment. Nevertheless, Dr. Hastings felt, and I believe properly, that he was negligent in allowing the responsibility for health supervision of so vast a part of the population to be under the control of another

city department, and that it was his duty as well as his responsibility to see that the health conservation of childhood as well as later life was looked after. He became so firmly convinced of this idea that finally he appealed to the local council, or whatever the local government board is called in that city, and asked to have the work transferred to the health board. I understand that they refused. But, finally, through some form of initiative and referendum, the matter was brought before the people of the city and they were allowed to vote upon it. Dr. Hastings used two arguments: One was, "Is health the function of the health department or the department of education?" The other was, "Can any community say that it will not control the health of any part of its population?" If I remember correctly, 26,000 votes were cast on this question, 20,000 in favor of the department of health assuming control of the system of school medical inspection and 6,000 in favor of the department of education continuing to supervise it. This, then, was the opinion of the "man in the street," who seemed to see clearly that health was a function of the department of health and could not be anything else.

As you also probably know, in England recently the entire system of school medical inspection was placed under the supervision of the Ministry of Health. The work, however, is still carried out through the medium of local educational groups, but the ultimate responsibility lies with the health authorities, as I believe it should. The system in England is remarkably effective at the present time and it is extremely probable that we may find our solution of this matter in the same manner that they found theirs.

It has not been altogether easy to collect definite figures as to the status of school medical inspection in this country. Dr. Clark, of the United States Public Health Service, who is here, has written an excellent pamphlet on this subject, in which he gives certain figures which differ slightly from those previously published in the *Journal of School Hygiene*. I believe, however, that Dr. Clark's figures should be taken as authoritative and as the latest we have on the subject. He states that in 15 states the departments of health and education have combined jurisdiction over this work. In 9 states the law designates no authority; thirty-four states altogether have laws making school medical inspection either mandatory or permissible. The remaining states which are not accounted for as giving definite authority have the work sometimes under one department, sometimes under the other, occasionally under both.

I think that both Dr. Finegan and I are agreed that any purely educational board is not equipped to deal with health matters without the help of the health authorities. We must also consider that the child is in school five hours out of the 24, for approximately 195 days out of the 365 of the year, so we can see for how short a time he would be under the supervision of the educational authorities if the latter alone were to deal with the problem. This is particularly true when one considers that the authority of the school officials does not reach into the home in the way that the authority of the health department does. Moreover, the health department has a great deal at stake in the matter. Schools, improperly supervised, can be the greatest starting point of infection we can find in a community, and at the same time, with proper school medical inspection intelligently conducted, they can be one of the greatest factors we have in preventing any epidemic of an infectious disease.

I think there is no difference of opinion between us as to the necessity of teaching health to the child, and I am strongly of the opinion that such teaching must come through the teacher in the classroom and be a part of the regular school system, but before we can think of that we must, as Dr. Finegan has said, pay more attention to the education of the teachers

themselves in health matters. For the present at least education of this type is notoriously inadequate and the present teaching of hygiene in the schools is not even worthy of the name.

And, finally, I think we are agreed that both the health department and the education department must look on this question more seriously than they have ever done in the past. Health departments have been inclined to let the matter rest, to a great extent, because boards of education have been willing to take it up. Health departments must insist that the school age period of the child's life is one of the greatest importance, as far as present or future health is concerned, and that in no other age group is there such an opportunity to do true preventive health work. Education departments, on the other hand, must, I think, realize that alone they are not equipped to deal with this vast question and that they should secure and be glad to get the help of the health authorities on this subject. It seems to me, therefore, that these two departments of government should get together and realize that they are members of the same family. The spirit of coöperation should be cultivated, and with the right kind of coöperation the health authorities can well outline the type of program that should be carried out. They must, and should be, the final authority in this matter, and must necessarily have final supervision. The school authorities, on the other hand, are in control of the places where the work should be carried on and their share in such work should be no less effective and no less interested, even though they are pursuing the consistent course of acknowledging that the health authorities have the essential knowledge and authority in the matter.

In addition, I think that here and now school authorities can make a great contribution to this subject by seeing that school hygiene is carried out to the fullest extent. It may be assumed that it is the primary duty of the school authorities to see that the school houses are kept in a sanitary and hygienic manner. This responsibility, however, has been sadly neglected in the past and even a superficial survey of the greater number of our rural schools, to say nothing of many of those in our cities, will show that school hygiene is a neglected subject. They must also begin at once to include in their normal schools proper courses in health rather than in the stereotyped form of hygiene that has been common in the past, and teachers must come forth equipped to teach health and show children how to live. I agree with Dr. Finegan that the solution of our problem lies in coöperation rather than in continued friction, and such coöperation is very important to both departments.

I do not know of a single place in the United States where school-health supervision is carried out in the way it should be, and usually this is because neither department has recognized to the fullest extent its responsibility in the matter. As for the continued quarreling over which board should have supervision, I think the time has come when we must forget our personal differences and consider the child. If we keep our minds fixed throughout on the child, what is best for him and what we want him to become, these other matters that seem so petty will finally vanish. If we can get together with this spirit, with the understanding that there is room for both groups, but that the final responsibility for health must come through the health authorities, just as the final responsibility for education must come through the educational authorities, it seems to me that minor differences can be easily smoothed out, and if this can be done I feel sure that the time will soon come in this country when we can say the child from five to fifteen years of age is getting just as square a deal in health matters as most communities are now giving to their babies.

LOCAL HEALTH BOARDS AND MEDICAL MILK COMMISSIONS

DAVID WILBUR HORN, PH. D.

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WHAT position should a local health board take in the matter of the certification of milk? An answer to this question has just been worked out, and seems to warrant some notice as showing one way in which this question may be answered. No such question arises in states where by statute "the work and methods of any medical milk commission . . . and of the dairies in which milk is produced under contract with any such commission,"[1] are made subject to the state board of health. Local health boards are obviously free from responsibility in the matter where, as in New Jersey, the secretary of the State Board of Health is ex officio a member of every milk commission. But the question arises frequently, because the number of such states is so small.

On July 10, 1922, the commissioners[2] of Lower Merion Township,[3] Montgomery County, Pennsylvania, enacted as an ordinance,[4] the revised rules and regulations of the health board,[5] including the following:

"Article VIII. Certified Milk. Rule 1. 'Certified Milk' means the product of dairies operated in accordance with the 'Methods and Standards for the Production and Distribution of Certified Milk,' adopted by the American Association of Medical Milk Commissions, May 1, 1912, and amendments thereto in effect at the time of production, except that the medical milk commission certifying this milk shall be one that is at all times satisfactory to this Board. The use of the word 'certified' is hereby prohibited on any milk produced and distributed under other than this Article."

This ordinance was passed by the commissioners only after an open meeting attended by representative members of the Main Line (local) Medical Association, by the secretary of the Milk Commission of the Philadelphia Pediatric Society,[6] and by the health board. After full discussion, all present agreed upon the above wording.

A rule thus making a medical milk commission answerable "at all times" to a local board of health, and compelling all certification to be by such a medical milk commission, did not arise spontaneously, but was born, after travail, of experience. It means a check of each agency upon the other. It marks a step in advance.

The fact seems at times to be forgotten that in their origin medical milk commissions were voluntary and unofficial bodies; and such they are today in Pennsylvania and in many other states. It would appear that had the State Medical Society of New Jersey in the years 1889 to 1893 succeeded in its appeal to the State for strict supervision of all dairies within the State limits, the certified milk

1. New Jersey Act of April 21, 1909.

2. Created and empowered under Act No. 86, Pa. Pamphlet Laws 1899, p. 104. This Act defines "the more populous townships of the Commonwealth, which are in large measure devoted to residential purposes" as townships of the first class, and vests all the corporate power, authority and franchise in the Board of Township Commissioners.

3. Lower Merion Township is contiguous to the city of Philadelphia. It has an estimated population of 23,866, covers approximately 25 square miles, and has been said to be the wealthiest township in the United States.

4. This ordinance was published for two consecutive weeks in the local papers, and became effective 10 days thereafter, that is, on August 1, 1922, in accordance with By-Law VI, L. M. Twp. Commissioners, adopted April 22, 1919.

5. Created and empowered under Act No. 228, Pa. Pamphlet Laws 1907, p. 302; these powers were revised by Act No. 316, Pa. Pamphlet Laws 1913, p. 471. The health board is empowered to make, and charged with the duty to make, "all such other regulations as they may deem necessary for the preservation of the public health."

6. The question of the production of a pure milk in the city of Philadelphia was first considered by this Society during the latter part of the year 1898. In December of that year a committee was appointed to consider the advisability of establishing a milk commission. In January, 1899, this committee made a favorable report to the Society, and at the same meeting a commission was appointed to be known as the Milk Commission of the Philadelphia Pediatric Society. See *Arch. of Pediatrics*, March, 1922.

movement would have had a different history. As MacNutt says,[7] "Medical milk commissions have undertaken, through practical exigency, a function of supervision which properly pertains to the public-health authorities. While they have served, and continue to serve, a useful purpose, it is a fact that, as official control becomes better and better developed, the value of such unofficial or quasi-official bodies diminishes toward the vanishing point." Another fact that seems at times to be forgotten is that health boards are not only official bodies, but they are official bodies which the empowering Act usually *charges with the duty* to exercise the powers it gives them.

Local experience had shown that both medical milk commissions and health boards, separately, might fall short of their duties in the matter of certified milk. In the jurisdiction of the Lower Merion Health Board, since its establishment in 1907-8, two certified milks have been produced by other unofficial bodies.[8] The Bryn Clovis Certified Milk was for years controlled (in a professional sense, not financially) by the Philadelphia Clinical Laboratory; it later passed under the supervision of the Milk Commission of the Philadelphia Pediatric Society. The Highland Farm Certified Milk was in the same sense controlled by the laboratory of the Bryn Mawr Hospital and later by the laboratory of the writer; in 1916 it passed under the supervision of the (neighboring) Haverford Township.[9] Board of Health. While the Haverford Health Board did not fail on as many points as the Milk Commission of the Philadelphia Pediatric Society, the Milk Commission did have many more dairies to keep up to standards.

There were many matters to be considered before unqualified control of the local certified milk market could be given to the Milk Commission of the Philadelphia Pediatric Society. It seemed impossible legally for the Health Board to delegate unreservedly and permanently any of its responsibilities to any unofficial group. If this is legally possible, it is questionable whether an unofficial group belonging in a neighboring (Philadelphia) county could legally be made an official group in Montgomery County. The local record of this Milk Commission, although comparable with that of the Haverford Township Board of Health, did not command the full respect and confidence of the Lower Merion Health Board. However, it did not seem expedient, so long as it was not imperative to do so, to retain the responsibility for proper production and distribution solely in the hands of the Lower Merion Board of Health. The local medical fraternity was apparently not favorably impressed with certification by health boards as exemplified by the work of Haverford Board. Further, the medical society seemed jealous of what may, with due regard to the history of milk certification, be called its "squatter rights" in the field of milk control. No confusion, real or hypothetical, in the use of the term "certified" could be urged with a medical milk commission as a party to the arrangement. And it was highly desirable to have the local physicians become actively interested in an intelligent and friendly way in the local milk production.

The spectacle of an active local health board supervising and stimulating a medical milk commission, and standing ready to foster the development of a new medical milk commission any time it may become necessary, is a spectacle of exceptional interest and promise in the field of milk sanitation. And this is Lower Merion's answer to the question, "What position should a local health board take in the matter of the certification of milk?"

7. The Modern Milk Problem, J. S. MacNutt. Macmillan, 1917. Page 69.

8. Prior to the existence of a local medical society.

9. Haverford Township is a first class township, contiguous to Lower Merion It has an estimated population of 6,608, covers approximately 10 square miles, and includes a part of the wealthy "Main Line" district. In accordance with statute (cf. footnote 5) the Board is "composed of five members, at least one of whom shall be a reputable physician of not less than two years' experience in the practice of his profession." Throughout the period of certification of Highland Farm milk, the president of the Haverford Board has been a physician.

REPORT OF THE COMMITTEE ON INDUSTRIAL HYGIENE,* STATE AND PROVINCIAL HEALTH AUTHORITIES

THE Committee on Industrial Hygiene is, as you know, a new committee and was formed at a time when the industrial situation was in a chaotic state. Consequently, it has been impossible for your Committee to make any satisfactory surveys or studies on which to report. Your Committee has, however, deemed it wise to present for your consideration three questions of vital importance which should be answered before a definite policy is outlined:

First. Is industrial hygiene a proper function for a state department of health?

Second. Is industrial hygiene of sufficient importance to give it a distinctive position in the organization?

Third. What should a state department of health program for industrial hygiene incorporate?

The following comments on these questions are not submitted as the final opinion of your Committee, but are merely suggestions for you to consider and discuss at some future date.

It is a proper function for a state department of health to concern itself regarding any activity which will promote or protect public health. Consequently, industrial hygiene might be considered as a proper function for a state department of health, particularly as industrial hygiene in benefiting the worker, improves the health of the community. Nearly every state has its labor laws, its factory inspection service, its compensation acts and other agencies which represent public interest in the welfare of the worker. The worker himself has shown interest by creating shop organizations and mutual benefit societies, and from these have developed the larger and more comprehensive welfare programs introduced and financed by the employer and employee jointly. Unfortunately, these activities have been confined mostly to the larger industries, and it is the smaller industries which represent even a larger number of workers that are in need of advice and assistance. It is fully as essential that the health and morale of the employees of the smaller factory be sustained, and the advantages to the employer are equally great. It has been suggested that in the small communities with small industrial activities, that the health and welfare work of the community and factory could be combined to advantage. We have seen demonstrations along these lines in group insurance and other group or community problems which have worked out successfully.

In developing a program for industrial hygiene, these facts should be considered, and when industrial hygiene is made a part of the community problem, it unquestionably implies that there is a responsibility on the part of public-health agencies.

Regarding the second question, "Is industrial hygiene of sufficient importance to give it a distinctive position in the organization?" it is our opinion that it need not necessarily be rated as a primary division, but industrial hygiene certainly should have a position sufficiently prominent to identify it from other activities. The field of service is large, and efforts directed toward the welfare of the worker will receive popular support. Industrial hygiene could well be made a subdivision of either the bureau of general administration or medical welfare, although to carry out an industrial hygiene program, the personnel would require assignments from engineering, nursing, sanitary inspection, statistical and other bureaus.

Regarding the third question, "What should a state department of health program for industrial hygiene incorpo-

*Read before the Conference of State and Provincial Health Authorities, Washington, D. C., May 16, 1922.

rate?" we offer an outline for a program which we hope you will consider, and submit your comments and criticisms to the Committee during the coming year.

STATE PROGRAM FOR INDUSTRIAL HYGIENE

1. Secure contact with public factory inspection, labor, and compensation agencies to enable coördination of programs and to prevent duplication.

2. Education and publicity to bring to the attention of the employer the economic value of welfare work, and to demonstrate that such endeavor will improve morale, reduce absenteeism and increase production many times, sufficiently to cover the cost; education of the employee as to the individual benefits both to himself and to his dependents; and, finally, education of the community as to the economic and health value of this work to secure public support and cooperation.

3. Information service, providing for surveys and reports with plans of group performances, the operation of dispensaries, etc. Standard methods of procedure should also be developed with reports of operative results, statistics, and exchange of experiences.

4. Service: demonstrations, inspections, research, medical and nursing consultation service, food and sanitary inspections, analyses of dust, vapors, waste, may all at times be logically undertaken by a state department of health, but, aside from demonstration, research and routine laboratory work, it should be the policy of the state to require local industry and local community to provide necessary service.

JOHN T. BLACK, M. D., *Chairman.*

ALLIED ORGANIZATIONS TO MEET AT CLEVELAND

Social Hygiene Conference. — The annual conference on social hygiene has been planned for Cleveland, Ohio, October 19 and 20. Delegates and friends of the American Social Hygiene Association and state and city social-hygiene societies, as well as standing committees on social hygiene of other national and local volunteer agencies, will attend the three sessions of the conference. Headquarters will be at the Hotel Statler.

The first session will be on the evening of October 19 and will be devoted primarily to a discussion of the social-hygiene and venereal-disease sections of the Cleveland Health Survey.

The second session will be held on the morning of October 20 and will be devoted to the social-hygiene legislation and administrative programs for 1922-23 and to reports on investigations relating to sex-social questions.

The third session will be held on the afternoon of Friday, October 20, and will be devoted to social-hygiene programs, national, state and local, for 1922-23.

The public will be invited to all the meetings, and members of the American Public Health Association are particularly urged to remain for this conference if possible. All members and delegates of the social-hygiene conference have been invited to be guests of the American Public Health Association for the boat trip on Lake Erie the afternoon of Thursday, October 19.

Other Organizations.—The American Medical Editors' Association, Dr. F. S. McMechan, Avon Lake, Ohio, Secretary, will meet in Cleveland at the time of the A. P. H. A. sessions.

The National Health Council will meet on Monday, October 16.

The Ohio Association of Industrial Physicians will conduct joint meetings with the Industrial Hygiene Section.

THE HEALTH OFFICER'S EXCHANGE

Under this head the Journal will print short articles giving accounts of actual experiences, methods and plans which have proved of practical utility in local health organizations, in the hope that health officers and sanitarians generally will find them of interest and value. Health officers and other health workers are invited to submit their experiences. Manuscripts must be limited to 1,500 words, preferably 1,000. The briefer and more concisely written they are, the better the chance of their publication.

MAKING A HOSPITAL THE CIVIC HEALTH CENTER

Because of the many activities essential for the preservation and control of the health of a community, there must be a central supervision so that the work may be standardized, and that there may be no lost motion because of duplication of effort. Without fear of being accused of political or personal advertising, I will say that the system we have adopted in Jersey City would seem to be ideal and a step forward in public-health work. It is unique in that there is no similar system in this country that I know of.

A medical department was organized under the Department of Public Affairs with the mayor as chief executive. The position of medical director was created with full supervision over all medical activities. The Jersey City Hospital was selected as a civic health center, from which radiate all of the different units. The work of these units has been so systematized and correlated that there is complete functioning, without friction, under one responsible head. Daily, weekly and monthly reports of the work of each unit are submitted to the central office resulting in greater efficiency and compelling a continuity of effort on the part of the employees of each unit.

In the Jersey City Hospital, 18 different departments have been organized, with a comprehensive social service bureau. Extraneous to the hospital proper, supervision is exercised over the Hospital for Contagious Diseases; the two units of the Board of Health, medical and sanitary; the Child Hygiene Division, consisting of the Mothers' Institute and ten welfare stations distributed over different sections of the city, and public-health and school nurses. Medical activities in all other departments, such as police and fire departments, also come under the same general supervision. There is not only intra-departmental functioning in the hospital proper, but the hospital facilities are utilized in the work of the other units. The medical section of the Board of Health controls communicable diseases through medical inspection and public-health nurses, and the sanitary section, besides investigation of sanitary conditions, plumbing, etc., carries on a close inspection of food supplies, particularly the handling of milk, at points of distribution and at the sources of supply.

The health center should be an educational center, and should prevent duplication of effort. It should have the effect of making better health officials because of possible criticism in case of dereliction, and, conversely, make better doctors for similar reasons, and there should be no conflict because of this. The forces operating to make such a system as I have outlined a success, are (1) legally constituted authority; (2) the private physician; (3) board of health, medical and sanitary; (4) medical inspection of school children; (5) hospitals and clinics; (6) social service, more particularly a follow-up system.

The profession must meet the demands of changed social and economic conditions. They must realize that the public expects more along the line of diagnostic methods.

Read before the Practitioners Club, Jersey City, N. J., February 12, 1922.

It is not unusual to hear the ordinary lay person discuss blood pressure, urinalysis, X-Ray, etc. The practice of medicine has changed. It is no longer possible to make hurried visits and superficial physical examinations, and to treat symptoms with frequent change of diagnosis without criticism. If such methods are followed it must be expected that patients will look elsewhere for advice, and the natural tendency will be towards hospitals and clinics where it is known that facilities exist for diagnostic purposes.

The demand for community health service may be due in part to the tendency towards specialism. It must be admitted that the pendulum has swung rather far in this direction. Specialists are now made over night. Most of us, I think, have a well-defined idea that the best specialist is the one who has had a thorough grounding in general medicine. It is not unusual these days to find an interne who has just finished his hospital service, branch out as a full-fledged specialist. Unless in exceptional cases he is not a specialist—he is a menace. I believe I can anticipate the return to his own of the general practitioner who will have at his disposal the hospital and laboratory facilities necessary for diagnostic purposes. In my judgment there is a distinct field for this class of medical practice, and the private physician must come to a realization that his function is not solely to treat diseased conditions, but to assist in every way possible to prevent them. It is well for him to remember also that the justification for child hygiene, pre-natal and post-natal, psychiatric, dental and nutritional clinics, is that every life has an economic value to a community.

One of the reasons for antagonism has been the treatment in hospitals and clinics of those who are supposedly able to pay for medical services. There is no question as to the justification for this criticism. This obtains in every community where institutional or public aid is offered. Most medical men do not realize how difficult it is to draw the line in these cases. We are obliged to contend with deceit and misrepresentation. To offset this in our work in Jersey City we have inaugurated a social service bureau that is functioning very successfully in eliminating those who are not entitled to the privileges of our system, and without such a bureau the condition would seem hopeless. In the last three months of the past year, 338 tonsil and adenoid cases were examined and about 7 per cent were refused. One hundred and sixty-six women attended the pre-natal clinic; over 8 per cent of these were referred to their own physician. A social worker attends the clinics, and if any doubt exists as to the ability to pay, an investigation is made, so that it must be appreciated that we are now using every effort to protect the interests of the profession generally along these lines.

In connection with the Social Service Bureau, I wish to say that the work done is invaluable in that it covers almost every feature of hospital work. For instance, when a case of venereal disease is admitted we do not consider our duty finished. An effort is made to discover the source of infection. If this information is advanced it is insisted that that person be placed under proper medical care. Drug addicts, when discharged, are kept under observation. The work of the Social Service Bureau along this line has effectually succeeded in breaking up a number of gangs of drug addicts. Other cases discharged from the hospital are followed up and instructed along hygienic lines and assisted in proper convalescence.

We realize that we cannot hope for success in community health if we do not have the active coöperation of the profession as a whole, more particularly the general practitioner. It is not our idea to antagonize the medical men, but rather to seek their help and advice. We are pleased to know that the profession generally recognizes that the medical department with all its facilities is for the purpose of assisting their work, that we welcome their coöperation and that we consider it a privilege to aid them in every way possible. As a matter of fact, my conception of a civic health center is a central point through which the community, including physicians, can command all health-promoting agencies in the interest of public health.

JOHN NEVIN, M. D.,
Medical Director, Jersey City, N. J.

FINANCING A COUNTY HEALTH UNIT

To secure and properly distribute funds for the maintenance of forces for fighting disease and saving life is the duty and aim of every conscientious health officer, and it is also one of his most difficult problems. The first consideration of county health administration is the budget, or the funds with which to finance its activities. The problem of securing an adequate budget for county health work is one for which no positive solution has been found, and for which none can be found which will be applicable to all sections of the country. It is a local proposition and, therefore, the application or request for funds must be governed by local conditions such as: the education of the people, their desire for public-health protection and their financial circumstances.

However strong our attempts may be to eradicate the idea, we must realize the established fact that public-health work is not free from political entanglements, and that in seeking appropriations for such work we are more or less at the mercy of the political powers. It is therefore essential that the political environment be kept in harmony with any and all proposed public-health activities. It is, of course, necessary to begin with the individual taxpayer and work through to the appropriating committee. An application for an appropriation should show three definite and distinct facts:

1. The specific need for such appropriations.
2. The accomplishments of past appropriations.
3. A definite and concrete idea of the proposed future activities.

An appropriating committee should realize the significance of a healthy people as pertaining to physical strength and happiness, and also the commercial value of health to a community or county. The commercial value of sickness prevented or of lives saved should overbalance the appropriations, and, therefore, become an asset to the county's fund.

The inadequacy of county health appropriations, combined with the short period of time which they usually cover, has been a source of much worry and hindrance to the county health officials. It is extremely difficult for a health officer, with the small appropriations usually granted, to show a reduction in expensive sickness and the saving of human lives sufficiently to justify him in going before his appropriating committee at the end of one year and asking for a repetition of his budget. Appropriations should be made to cover a period of three to five years; then the health unit would not only have an opportunity to show sickness prevented and lives saved, but it would have the opportunity to demonstrate the commercial value of public-health work, and through such demonstrations be able to establish an efficient and permanent health unit. An efficient health officer plans his work far in advance, and upon this basis it is the opinion of the writer, that one three-year period of county health work is worth many times as much as three one-year periods. A definite sum appropriated to finance routine work for a period of three years or longer enables the health officer to plan his work with confidence and intelligence and with a view to efficiency and economy.

Every health officer should recognize the fact that public-health administration is a business, and that it will not succeed unless it is conducted on business principles. Money appropriated for public-health work is money invested in the prevention of sickness and the saving of lives, and it is the duty of every health officer having charge of such funds, either directly or indirectly, to make such distribution as will produce the greatest possible results.

With a one-year budget for a county, a canvass should first be made, not necessarily a house-to-house canvass, but a general survey of the county, and after the general survey has been made, the funds should be distributed and efforts directed to those sections of the county that are most in need, and where public-health activities and expenditures will count most.

Unfortunately every health officer is confronted with the problem of an inadequate budget, he is not supplied with sufficient funds to finance the work that is necessary and which he would like to do and it is, therefore, necessary for him to confine his activities within the limits of his budget, and leave valuable work undone, or devise ways and means of securing additional funds. This can sometimes be done by making a personal appeal to private indi-

Read before the Annual Conference of Public Health Workers, Richmond, Virginia, December 30, 1921.

viduals who are interested in that particular phase of public-health work that the health officer is trying to do. Such an appeal should be made in the form of a prospective report, and should show the definite results as nearly as possible that are to be accomplished through the expenditure of the definite sum. One of our greatest obstacles in securing funds is the fact that we are not definite enough. We use the broad term "public health work," which to many people is not interesting because it is too broad for their comprehension. But if we use the term "typhoid prevention," "malaria prevention," or the "prevention of tuberculosis," it gives such people a more concrete idea of what we are trying to accomplish, and it is, therefore, much easier to obtain their support.

There are certain phases of public-health activities which should be made self-supporting. Dental clinics, and more especially tonsil and adenoid clinics, should be so thoroughly organized that they will not only be self-supporting, but will furnish a fund with which to finance additional activities. This can be done by first making a thorough survey of the district in which the clinics are to be held, and for every patient able to pay an average fee of $15.00 for an operation, add one charity patient. This system will in practically every instance accommodate those who are unable to pay and gain the good will and confidence of others because of having rendered to them a valuable and inexpensive service.

This system was applied in Fauquier County during the past year to a tonsil and adenoid clinic of two days' duration for both white and colored, and a two weeks' dental clinic for colored only. The tonsil and adenoid clinic showed a profit of nearly $200 and the dental clinic a profit of $40. It should be borne in mind that a special effort was made to bring in the charity cases, and that there was not one turned away because of the lack of funds to pay for the service.

Finally, public-health appropriations must be expended wisely and in such a manner as to command confidence. In public-health administration, as in other business, economy should be the watchword. We should at all times bear in mind that the people have deposited their money with us to be invested in a disease-prevention and life-saving business, and it is a solemn duty that we owe to the sick and suffering, as well as the well, to see that this business is managed in a way to get the greatest possible results.

T. J. ROBINSON, U. S. P. H. S.
Field Director, Fauquier County Health Department, Warrenton, Va.

HOW THE PUEBLO HEALTH DEPARTMENT MET THE FLOOD EMERGENCY

The Pueblo flood of June 3, 1921, with its heavy loss in lives and property, must be listed as one of the greatest disasters that have ever befallen an American city; yet there were several features in connection with it that are pleasant to remember. There have been other catastrophes as bad, even worse, but never has there been one in which the people displayed greater courage and promptness in facing and recovering from their misfortune.

Another point is that the city was saved from any epidemic of disease or sickness—something which often follows such a calamity. The people were without lights, gas, water and sanitary facilities, and threatened with a serious shortage of food and fuel; the streets were piled full of debris, hundreds were homeless, and persons with contagious and infectious diseases were scattered throughout the city; yet only one death resulted from illness or disease contracted as a result of flood conditions.

The reason for this can best be explained by repeating a statement made, after a thorough investigation, by the commanding officer of the government forces stationed in the city following the disaster: "The present excellent health conditions may, for the most part, be attributed to the efficient work of the Pueblo Health Department, and the prompt and efficient measures taken by it immediately after the flood."

The entire work of the Health Department was directed by Dr. W. E. Buck, city physician, and it was characterized by two

things: promptness in getting started after the disaster, and efficiency in every branch of the work. The city had been completely isolated by the flood, yet the solution of her health problem was already well under way by the time outside assistance arrived.

The first move of the Health Department was to make a general survey of the city in order to determine the best methods of meeting the situation. The gravest danger lay in contamination from waste matter and the possibility of a polluted water supply. To offset this, handbills were printed and distributed warning the people to boil all water used for drinking and cooking and advising them regarding sanitary measures.

In order to avoid duplication of effort, and to systematize the work, the city was divided into eight districts, each in charge of a doctor. Assistant doctors and nurses, with other help, were then assigned to each district. A preliminary survey established the boundary lines of each district and acquainted the doctor in charge with conditions in the territory of which he had charge.

Doctors of the various districts visited the sick daily. Whenever possible, the services of the family physician were urged, no interference being offered to private practice. First-aid treatment was given at each district headquarters, and typhoid inoculations and smallpox vaccinations were administered free of charge. Practically every physician in the city joined in this work of free immunization as soon as the necessary serums and vaccines had been obtained.

The districts were divided and sections assigned to the nurses. A house-to-house canvass was made to prevent overcrowding of dwellings, to report sickness and disease, to maintain a fight against the increasing menace of flies, and to assist the people in carrying out emergency sanitary regulations.

Restaurants, markets, groceries, dairies, rooming-houses and all places of business were inspected daily. Supplies of carbolized and chlorinated lime and cresol were distributed from each district headquarters to citizens who aided materially in fighting off disease.

Dead animals were hauled away and burned, pools of water were either drained or disinfected, and a vigorous search was maintained for the bodies of flood victims. Water from each well in the city was analyzed, and those found to contain impure water were closed.

A corps of doctors and nurses, organized in Denver under Major John C. Cornell, of the U. S. Public Health Service, arrived in Pueblo on June 6 and tendered their services to the Health Department. The force directed by Dr. Buck immediately after the flood consisted of 45 physicians, 30 nurses, 36 inspectors, and several hundred workmen.

There were approximately 37 diphtheria patients, together with 136 possible carriers and exposures in Pueblo at the time of the disaster. During the excitement, these persons were scattered among the homes, exposing hundreds of others. Within a week all these persons had been located and isolated by the Department.

A remarkable feature of the flood was the heroism of J. D. Byrnes, quarantine officer of the local Department, who, by repeatedly risking his life, rescued 35 patients from the flooded city hospital. These patients were later taken to Minnequa Hospital, outside the flood districts, where they and all other patients sent by the Health Department were cared for without charge.

In order to cope more effectively with the task of inspecting food, this Department was divided into three branches, as follows: meats, milk and dairy products, and perishable food. Fresh meats offered for sale were ordered kept screened from flies and in cool compartments. All dairy products were carefully investigated as to their source, and all fruits and vegetable in the city at the time of flood that did not require cooking before use, were condemned wholesale and destroyed.

Sanitary inspectors supervised the removal of debris from the streets and saw that all streets and alleys were properly disinfected; located and inspected dumps; inspected places of business and basements and supervised the disposal of garbage. No dwelling that had been damaged by the flood was allowed to be occupied until the city building inspector pronounced it safe, and even the plumbing temporarily installed had to conform with sanitary requirements.

To care for those made homeless by the flood, two large refugee camps were estab-

lished; military tents provided shelter; cots and blankets were supplied the refugees, and meals were provided by the various charitable organizations. The camps were kept under military guard and all persons in them were required to submit to medical examination daily and to smallpox vaccination and typhoid inoculation.

While the emergency measures enforced by the Health Department may have appeared somewhat drastic to some, they received the complete support of the civil and military authorities and the general public. One of the pleasant features of the work was the willingness and promptness of the people in coöperating with the Health Department in all matters pertaining to the public health.

The value of the emergency measures may best be realized by the results obtained. Only three cases of typhoid were due to the flood and only one life was lost because of conditions following it. In the year following, Pueblo has had less typhoid than during the year preceding the flood, no epidemic of disease or illness followed the disaster, and the cases of diphtheria decreased gradually. Sanitary conditions and the general health are much better than before the flood, which fact alone is a tribute to the work of the local Health Department and modern medical science in preventing disease and illness.

EARL C. MCCAIN,
The Pueblo Star-Journal,
Pueblo, Colorado.

TALE OF A TUMMY

10:00 A. M.—Oh, dear! Another warm day. Wonder if I'll be abused as I was yesterday. If I am, I'm going to strike. Just disposed of a half-chewed breakfast. We ran for the train, which meant I was so jiggled about and so tired that it took me twice as long to do my work. Hope she gives me an hour or two of complete rest before anything more comes my way.

10:30 A. M.—Two glasses of ice water have just arrived. It will take all the energy I can pump up in the next hour just to warm me up to normal again.

10:50 A. M.—Half-chewed breakfast did not satisfy her and she has bought some peanuts and started again.

12:00 M.—Peanuts have been drifting along steadily ever since. Think she has finished them, too.

12:30 P. M.—Decided she wasn't very hungry, and instead of a good solid dinner sent me down a cold egg-nog heavy with chocolate. Could have managed it all right if it hadn't been so unnaturally cold, but that made it terribly difficult to deal with.

1:10 P. M.—More ice water.

1:40 P. M.—Was mistaken about the peanuts; she found another handful in the bottom of her vanity bag, and now I am getting them again.

2:05 P. M.—More ice water.

2:10 P. M.—She has been lifting some heavy books and as usual used my muscles, instead of her arm muscles. You see, she's never had any proper physical education—soft, flabby, slouchy sort. Tired me almost as much as a six-course dinner.

3:20 P. M.—Furtive fellow has brought us a box of caramels. Just heard her say, "Oh, dear! I don't feel a bit well. The milk in that egg-nog must have been sour."

6:30 P. M.—We played a set of tennis before dinner and here I am all tired out and a lot of work to do.

6:50 P. M.—We were invited by a sissy sport with a belt on his coat to have a soda before going home. Had a lemon phosphate and then had to run for a car.

7:00 P. M.—Fried 'taters, cucumbers, veal cutlets, catsup, cookies and canned blueberries. What do you know about that?

7:45 P. M.—We are strolling down to the corner with a knock-kneed guy in a sport shirt and white pants for a pineapple walnut college ice.

8:20 P. M.—Got home and found somebody had made some iced tea. She drank two glasses. I tried hard to keep the tea and the college ice separated, but they mixed in spite of me. I go on strike.

8:30 P. M.—I have sent back the college ice and the iced tea.

8:40 P. M.—Returned the blueberries.

8:45 P. M.—And the peanuts.

9:00 P. M.—The devil to pay—can't get the doctor.

9:17 P. M.—Doctor found at the movies. Mother thinks it's a weak stomach she inherited from her father. Knock-knee suggests it's the beastly weather—the big boob!

9:45 P. M.—Doctor says it is from a bilious temperament. Good night!

FIFTY-FIRST ANNUAL MEETING

PRELIMINARY PROGRAMS OF THE SCIENTIFIC SESSIONS

Hotel Statler, Cleveland, October 16-19.

OUTLINE OF MEETINGS

General Sessions—Monday evening; Wednesday evening.

Public Health Administration—Monday afternoon; Tuesday morning; Wednesday afternoon.

Laboratory—Program not available at time of going to press. Meetings probably Tuesday morning and Wednesday morning.

Industrial Hygiene—Tuesday morning; Tuesday afternoon (Inspection trip); Wednesday morning.

Vital Statistics—Tuesday afternoon; Wednesday afternoon; Thursday morning.

Food and Drugs—Monday afternoon; Tuesday afternoon; attendance invited by Sanitary Engineering Section for Wednesday afternoon; Thursday morning.

Sanitary Engineering—Tuesday afternoon; Wednesday afternoon; Thursday morning.

Child Hygiene—Monday afternoon; Tuesday afternoon.

Health Education and Publicity—Wednesday morning; Thursday morning.

Public Health Nursing—Tuesday morning. (This group, which meets this year for the first time, is also cordially invited to attend the meetings of other sections.)

Governing Council—Sunday, October 15, 7:45 P. M.; Monday, 9:30 A. M., and daily at 4:30 P. M.

All morning meetings begin promptly at 9:45 o'clock; afternoon meetings at 2 o'clock; evening meetings at 7:45 o'clock.

Except where otherwise noted, all meetings are in rooms on the mezzanine floor of the Statler.

MONDAY, 2 P. M.

PUBLIC HEALTH ADMINISTRATION

SESSION I

Ball Room

Address of the Chairman. JOHN DILL ROBERTSON, M.D., Chicago, Ill.

Reading of Minutes of Previous Meeting.

Designation of Committee to Nominate Officers, Council, etc.

The Next Step for State Health Departments.

EUGENE R. KELLEY, M.D., Boston, Mass.
W. S. RANKIN, M.D., Raleigh, N. C.
EDWARD MARTIN, M.D., Harrisburg, Pa.
I. D. RAWLINGS, M.D., Springfield, Ill.
E. G. WILLIAMS, M.D., Richmond, Va.

Discussion.

New Business.

Papers are limited to fifteen minutes, discussions to five minutes. Laboratory papers are limited to ten minutes.

FOOD AND DRUGS

SESSION I

Room E

Reading of Minutes of Previous Meeting.

Report of Committees on Membership and Constitution.

Designation of Committee to Nominate Officers, Council, etc.

Address of the Chairman. R. E. DOOLITTLE, Bureau of Chemistry, U. S. Department of Agriculture, Chicago, Ill.

The Present Status of Glandular Therapy. (Stereopticon illustration.) LOUIS KLEIN, M.D., Parke, Davis & Co., Detroit, Mich.

Important Considerations in the Relation of Food to Disease. Committee on Relation of Food to Disease, J. C. GEIGER, M.D., U. S. Public Health Service, Washington, D. C., Chairman.

Report of Committee on Problems of Canning. W. D. BIGELOW, Ph.D., Director of Research Laboratories, National Canners' Association, Washington, D. C., Chairman.

MONDAY, 2 P. M. (Continued)

Report of Committee on Preparation, Packing and Transportation of Foods. FRED C. BLANCK, Bureau of Chemistry, Washington, D. C., Chairman.

Report of Committee on Conservation and Development of Food Supplies. R. M. ALLEN, Director, Research Products Department, Ward Baking Committee, New York City, Chairman.

CHILD HYGIENE

SESSION I

Room A

Reading of Minutes of Previous Meeting.

A Plea for Recognition of "Potentially Tuberculous" as a Valid Diagnosis During Childhood to be Officially Included in "Nomenclature of Diseases and Conditions" of the United States Public Health Service. KENNON DUNHAM, M.D., Associate Professor of Medicine, University of Cincinnati, Director Tuberculosis Service, Cincinnati General Hospital, Cincinnati, O.

Designation of Committee to Nominate Officers, Council, etc.

Preventive Infant Feeding—Its Simplification. H. J. GERSTENBERGER, M.D., Medical Director, Babies' Dispensary, Cleveland, O.

Discussion opened by: R. J. OCHSNER, M.D., Chief Bureau of Child Hygiene, Department of Public Welfare, Cleveland, O.

Indices of Growth in Children. EDGAR SYDENSTRICKER, Statistician, U. S. Public Health Service, Washingotn, D. C.

Mental Hygiene Service for Pre-School Children. ARNOLD GESELL, M.D., Professor of Child Hygiene, Director of Yale Psycho-Clinic, Yale University, New Haven, Conn.

MONDAY, 7:45 P. M.

GENERAL SESSION I

Ball Room

Addresses of Welcome

J. J. THOMAS, M.D., representing local social, medical and health groups.

NEWTON D. BAKER (formerly Secretary of War), President of the Chamber of Commerce.

RALPH PERKINS, Department of Public Welfare, Cleveland, O.

Presidential Address. A. J. MCLAUGHLIN, M.D.

Report of Committee on Reorganization. HENRY F. VAUGHAN, D.P.H., Chairman.

Reception to Members and Guests. Music, refreshments.

TUESDAY, 9:45 A. M.

PUBLIC HEALTH ADMINISTRATION

SESSION II

Ball Room

Plans to Reduce the High Mortality from Acute Respiratory Diseases in Winter.

General—W. A. EVANS, M.D., Chicago Ill.

Epidemiology—HENRY F. VAUGHAN, D.P.H., and GEORGE T. PALMER, D.P.H., Detroit, Mich.

Discussion opened by F. L. HOFFMAN, LL.D., Consulting Statistician, Prudential Insurance Company of America, Newark, N. J.

Report of Results of Work at Pageant of Progress Exposition, Chicago, on Milk Ordinance for a Small City. JAMES P. KILCOURSE, Chief, Bureau of Food Inspection, Health Department, Chicago, Ill.

INDUSTRIAL HYGIENE

(Joint Meeting of the Industrial Hygiene Section and the Ohio Association of Industrial Physicians)

DR. WADE WRIGHT, Chairman, A. P. H. A. Industrial Hygiene Section, Harvard School of Public Health, Boston, Mass.

DR. SYDNEY S. MCCURDY, President, Ohio Association Industrial Physicians, Medical Director, Youngstown Sheet & Tube Company, Youngstown, O.

SESSION I

Room E

Business Meeting, Ohio Association of Industrial Physicians.

Address of the President. SYDNEY S. MCCURDY, M.D., Medical Director, Youngstown Sheet & Tube Company, Youngstown, O.

Causes of Absenteeism Among Store Workers. CHARLES A. SWAN, M.D., Medi-

TUESDAY, 9:45 A. M. (Continued)

cal Director, Halle Brothers Company, Cleveland, O.

Discussion opened by: A. B. EMMONS, 2d, M.D., Director, Harvard Mercantile Health Work, Boston, Mass.

Computation of Partial Loss of Vision. WILLIAM MEHL, M.D., Buffalo, N. Y.

Discussion opened by: WEBB P. CHAMBERLAIN, M.D., Cleveland, O.

Practical Mental Hygiene in Industry. FREDERICK W. DERSHIMER, M.D., National Lamp Works, Cleveland, O.

Discussion opened by: A. G. CRANCH, M.D., Medical Director, National Carbon Company, Cleveland, O.

Heat Hazards in Industry. G. H. McKINSTRY, M.D., Medical Director, Spang, Chalfant & Co., Pittsburgh, Pa.

Discussion opened by: H. S. JOHNSON, M.D., Carnegie Steel Company, Pittsburgh, Pa.

PUBLIC HEALTH NURSING

SESSION I

Room A

Designation of Committee to Nominate Officers, Council, etc.

Public Health Nursing in Eighty-three Cities. (From the Report of the Committee on Municipal Health Department Practice.) MARGARET R. BURKHARDT, M.A., assistant superintendent Visiting Nurse Association, Bridgeport, Conn.

The Coördination of Public and Private Agencies in a Generalized Public Health Nursing Program. ELIZABETH W. HOLT, R.N., Superintendent Public Health Nursing Service, Dayton, O.

The Importance of Follow-up in the Home. MARY LAIRD, R.N., Director Public Health Nursing Association, Rochester, N. Y.

Election of officers and Section Representatives.

TUESDAY, 2 P. M.

VITAL STATISTICS

SESSION I

Room B

Reading of Minutes of Previous Meeting.

Epidemiology

The Importance of Epidemiology as a Function of Health Departments. WADE H. FROST, M.D., Surgeon, U. S. Public Health Service, Professor of Epidemiology, Johns Hopkins University, School of Hygiene and Public Health, Baltimore, Md.

Designation of Committee to Nominate Officers, Council, etc.

The Influence of Epidemiology upon Present-day Methods of Control of Communicable Disease. HAVEN EMERSON, M.D., Professor of Public Health, Columbia University, New York City.

The Epidemiological Work of State Health Departments.

Discussions: EDWARD S. GODFREY, JR., M. D., New York; R. W. PRYER, D.P.H., Michigan; FRANK G. BOUDREAU, M.D., Ohio; E. C. LEVY, M.D., Virginia; D. C. BOWEN, New Jersey.

FOOD AND DRUGS

SESSION II

Room E

Report of Nominating Committee and Election of Officers and Section Representatives.

The Character of "Moonshine" Liquors. ROY A. HAYNES, Federal Prohibition Commissioner, Washington, D. C.

The History of Cold Storage. Committee on Cold Storage, PETER H. BRYCE, M.D., Ottawa, Ont., Chairman.

The Place of Proteins in the Diet in the Light of the Newer Knowledge of Nutrition. H. H. MITCHELL, Ph.D., Associate Professor of Animal Nutrition, University of Illinois, Urbana, Ill.

The Present Status of Our Knowledge of Vitamines. Committee on Nutritional Problems, HENRY C. SHERMAN, Ph.D., Professor of Food Chemistry, Columbia University, New York City, Chairman.

SANITARY ENGINEERING

SESSION I

Room D

Address of the Chairman. W. H. DITTOE, Chief Engineer, State Department of Health, Columbus, O.

Reading of Minutes of Previous Meeting.

Reports of Committees on Program and Constitution.

Designation of Committee to Nominate Officers, Council, etc.

Presentation of Applications for Membership.

Miscellaneous Business.

The question of approval of the "Definitions of Terms Used in Sewerage and Sewage Disposal Practice," submitted by the Committee on Sewerage and Sewage Disposal at the Annual Meeting held in Washington, October 17-20, 1917, and published in the AMERICAN JOURNAL OF PUBLIC HEALTH, Vol. VII, No. 10, will be brought up.

Progress Report of Committee on Refuse Collection and Disposal. M. N. BAKER, As-

TUESDAY, 2 P. M. (Continued)

sociate Editor, *Engineering News-Record*, New York City, Chairman.

Progress Report of Special Committee on Sludge Disposal. LANGDON PEARSE, Sanitary Engineer, the Sanitary District, Chicago, Ill., Chairman.

CHILD HYGIENE

SESSION II

Room A

The Channel and Some Shoals in Municipal and State Child Hygiene Administration. MERRILL E. CHAMPION, M.D., Director, Division of Child Hygiene, State Health Department, Boston, Mass.

Election of Officers and Section Representatives.

Maternal Mortality and Mortality in the First Month of Life in Relation to Attendant at Birth. (Stereopticon illustration.) JULIUS LEVY, M.D., Director, Bureau of Child Hygiene, State Board of Health, Trenton, N. J.

The New York State Program for Maternity and Infant Welfare. FLORENCE L. MCKAY, M.D., Director, Division of Maternity, Infancy and Child Hygiene, State Department of Health, Albany, N. Y.

Discussion opened by: ANNA RUDE, M.D., Children's Bureau.

Should the Social Service Departments in Children's Hospitals be Developed Into Departments for the Prevention of Disease? (Stereopticon illustration.) HOWARD CHILDS CARPENTER, M.D., Director, Department for Prevention of Disease, Children's Hospital, of Philadelphia, Pa.

WEDNESDAY, 9:45 A. M.

INDUSTRIAL HYGIENE

SESSION II

National Lamp Works, Nela Park, Cleveland. Laboratory of Applied Science, Room 117

Business Meeting, Industrial Hygiene Section, A. P. H. A.

The Tuberculosis Problem in Industry. (Stereopticon illustration.) HORACE JOHN HOWK, M.D., Assistant Medical Director, Metropolitan Life Insurance Company, Physician in Charge, Metropolitan Life Insurance Company Sanatorium, Mt. McGregor, N. Y.

Discussion opened by: H. A. PATTISON, M.D., Supervisor Medical Service, National Tuberculosis Association, New York City; JAMES A. BRITTON, M.D., International Harvester Company, Chicago, Ill.; GEORGE M. PRICE, M.D., Joint Board of Sanitary Control, New York City.

Industrial Dermatoses. (Stereopticon illustration.) HAROLD N. COLE, M.D., Associate Professor of Dermatology, Western Reserve University Medical School, Cleveland, O.

Discussion opened by: CHARLES BASKIN, Dermatologist, B. F. Goodrich Co., Akron, O.

Election of Officers, Section Representatives, etc.

Health Education in Industry. (Stereopticon and motion picture illustration.) RALPH W. ELLIOTT, M.D., Manager, Medical Department, National Lamp Works of General Electric Company, Cleveland, O.

Factory Lighting Demonstration

After luncheon, which can be obtained at Nela Park for a nominal price, there will be demonstrations at 2:30 o'clock, with the following program:

Address and Demonstration, Lighting and Vision with Special Emphasis on School- and Home-Lighting. M. LUCKIESH, Director of Applied Science, Nela Research Laboratories.

Address and Demonstration, Industrial Lighting. WARD HARRISON, Illuminating Engineer, National Lamp Works.

HEALTH EDUCATION AND PUBLICITY

SESSION I

Room A

Clinic on Printed Matter

1. Critical examination of leaflets, circulars and booklets for popular use:

   a. Copy.
   b. Illustrations.
   c. Form of typography.
   d. Cost.

The discussion will be led by specialists in advertising, typography, etc., to whom the leaflets will be submitted in advance.

Public and voluntary health agencies are invited to submit one or more leaflets for examination. Copies in proof of unpublished material will be considered.

Please send six copies of each leaflet in advance to the vice-chairman of the committee, Mr. E. G. Routzahn, Russell Sage Foundation, 130 East 22d Street, New York City, advising also whether 100 to 200 copies can be furnished for use in the audience.

2. What are the chief difficulties in the way of getting better printed matter?

WEDNESDAY, 9:45 A. M. (Continued)

Preliminary Business Session.

Designation of Committee to Nominate Officers, Council, etc.

Announcement of Committees on Plan of Work.

Note: Names of speakers will be given in the final program. Ample opportunity for discussion of all topics will be given.

There will be several luncheon and dinner meetings, including a joint session with the American Medical Editors' Association. Detailed program will be sent in advance to those who request it.

Inquiries regarding the program, suggestions for the nominating committee or plan of work committee, and communications regarding the clinic on printed matter may be sent to the vice-chairman in charge of program, Mr. E. G. Routzahn.

WEDNESDAY, 2 P. M.

PUBLIC HEALTH ADMINISTRATION

SESSION III

Ball Room

Control of Diphtheria. W. H. PARK, M.D., ABRAHAM ZINGHER, M.D.; M. C. SCHRODER, M.D., Bureau of Laboratories, New York City.

Discussion opened by HERMAN N. BUNDESEN, M.D., Commissioner of Health, Chicago, Ill.

Law Enforcement in the Control of Tuberculosis. EDGAR A. JONAS, President Board of Directors, Municipal Tuberculosis Sanitarium, Chicago, Ill.

Formal action of the Section upon the following reports submitted last year, but not acted upon. (Tentative date. Definite date will be announced in final program.):

Model Health Code for Cities, CARROLL FOX, M.D., Chairman.

Rural Health Administration, K. E. MILLER, M.D., Chairman.

Venereal Disease, W. F. SNOW, M.D., Chairman.

Vaccination for Smallpox, HEMAN SPALDING, M.D., Chairman.

Report on Salary Standards. CARROLL FOX, M.D., Medical Purveyor, U. S. P. H. S., Washington, D. C., Chairman.

VITAL STATISTICS

SESSION II

Vital Statistics

Room B

Development of Vital Statistics in Canada. E. S. MACPHAIL, Superintendent, Dominion Bureau of Statistics, Ottawa, Ont.

Some Mortality Statistics of South American Republics. FREDERICK L. HOFFMAN, LL.D., Consulting Statistician, Prudential Insurance Co. of America, Newark, N. J.

The Improvement of Birth Registration from the Standpoint of Statistical Needs. OTTO R. EICHEL, M.D., Director, Division of Vital Statistics, State Health Department, Albany, N. Y.

Some Practical Problems in the Improvement of the Registration of Deaths in a Southern State. STEWART G. THOMPSON, D.P.H., Director, Bureau of Vital Statistics, State Health Board, Jacksonville, Fla.

Round Table Discussion on Morbidity Reports. Leader: J. S. MITCHENER, M.D., A. A. Surgeon, U. S. P. H. S., Collaborating Epidemiologist, State Board of Health, Raleigh, N. C.

SANITARY ENGINEERING

SESSION II

Room D

Members of the Food and Drugs Section are invited to attend this session.

Report of Committee on Milk Supply. H. A. WHITTAKER, Director, Division of Sanitation, State Board of Health, Minneapolis, Minn., Chairman.

Typhoid Fever and the Water Supply and Sewage Conditions around the Great Lakes. LANGDON PEARSE, Sanitary Engineer, the Sanitary District, Chicago, Ill. S. L. TOLMAN, Assistant Sanitary Engineer, the Sanitary District, Chicago, Ill.

WEDNESDAY, 7:45 P. M.

GENERAL SESSION II

Ball Room

The Ideal Health Department. (From the **Report on Municipal Health Department Practice.)** C.-E. A. WINSLOW, Dr.P.H., Yale University, New Haven, Conn., Chairman.

How Can Public Health Be Safeguarded Against Politics? (Speakers to be announced in final program.)

Election of Members of Governing Council for the Coming Year.

THURSDAY, 9:45 A. M.

VITAL STATISTICS

SESSION III

Room B

Statistical Evaluation of Public Health Activities. RAYMOND PEARL, LL.D., Professor of Biometry and Vital Statistics, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md.

Discussion opened by: E. C. MEYER, Ph.D., New York City; OTTO R. EICHEL, M.D., New York; E. W. KOPF, New York.

Report of Committee on Public Health Climatology. GEORGE T. PALMER, D. P. H., Department of Health, Detroit, Mich., Chairman.

Report of Committee on Institutional and Hospital Statistics, with Special Reference to Statistics of Cancer. F. L. HOFFMAN, LL.D., Consulting Statistician, Prudential Insurance Co. of America, Newark, N. J., Chairman.

Report of Committee on Educational and Professional Standards for Statisticians. E. W. KOPF, New York, Chairman.

Report of Committee on Forms and Methods of Statistical Practice, with Suggestions as to Tables for Morbidity Reports. RICHARD C. LAPPIN, Bureau of the Census, Washington, D. C., Chairman.

Report of Committee on Registration Affairs. W. H. DAVIS, M.D., Bureau of the Census, Washington, D. C., Chairman.

Nomination and Election of Officers and Section Representatives.

Informal Committee Reports.

New and Unfinished Business.

FOOD AND DRUGS

SESSION III

Room E

Report of Committee on Drugs and Nostrums. HAROLD J. KNAPP, M.D., Chief Diagnostician in Charge of Laboratories, Department of Public Welfare, Cleveland, O., Chairman.

Report of Committee on Habit Forming Drugs. CHARLES E. TERRY, M.D., Committee on Drug Addictions, New York City, Chairman.

Effect of Fraudulent and Extravagant Advertisements of Food and Drugs on Public Health. Prepared by the Associated Advertising Clubs of the World, New York City.

The Sanitation of Bottled Beverages and Soda Fountain Drinks. JAMES P. KILCOURSE, Chief, Food Inspection Bureau, Department of Health, Chicago, Ill.

Coffee, Its Origin, Derivation and Physiologic Properties. PROFFESOR SAMUEL S. PRESCOTT, Department of Biology and Public Health, Massachusetts Institute of Technology, Cambridge, Mass.

Report of Committee on Retail Distribution and Marketing of Foods. WILLARD E. WARD, Department of Health, Brookline, Mass., Chairman.

Report of Committee on Meat Inspection. W. H. LIPMAN, M.D., Swift & Company, Union Stock Yards, Chicago, Ill., Chairman.

SANITARY ENGINEERING

SESSION III

Room D

Progress Report of Committee on Mosquito Control. M. Z. BAIR, Chief Sanitary Engineer, State Board of Health, Little Rock, Ark., Chairman.

Report of Committee on Bathing Places. GEORGE W. SIMONS, JR., Chief Sanitary Engineer, State Board of Health, Jacksonville, Fla., Chairman.

Election of Officers and Section Representatives.

HEALTH EDUCATION AND PUBLICITY

SESSION II

Room A

Newspaper Publicity

1. The Health Movement as a Source of News.
2. Preparation of Newspaper Copy.
3. Conducting a Newspaper Health Department.

Final Business Session.

Election of Officers and Section Representatives.

Report of Committee on Plan of Work.

THURSDAY, 2 P. M.

Probably a boat trip on the lake. Definite announcement in the final program.

GENERAL INFORMATION

Headquarters. Registration booth, scientific sessions and exhibits will be at the Hotel Statler. This is easily reached by street-car from the Union Station, where instructions will be conspicuously posted.

Hotels. A list of hotels with registration blank was published in the September JOURNAL, page 768. Make your reservations early as there will be four conventions in Cleveland at the time of the American Public Health Association sessions.

Registration. All members *and guests* are requested to register promptly upon arrival at the registration booth, mezzanine floor, Hotel Statler. The registration booth will be open on Sunday afternoon, October 15, for those who wish to avoid the rush of Monday morning.

Exhibits. The following is a list of organizations whose products will be exhibited at the Annual Meeting:

Name	*Booth No.*
Kerner Incinerator Company	1
Colgate & Company	2
Abbott Laboratories	3
Ward Baking Company	4
Wilmot Castle Company	5
Fairbanks, Morse & Company	6
H. R. Lathrop & Company	8
Will Corporation	9 and 10
The Gilliland Laboratories	13
Sanborn Company	14
Pepsodent Company	15
Laboratory Products	16
West Disinfecting Company	17
Union Paper and Twine Company	18
Coöperative Book Exhibit	19 and 20
The Nation's Health	21
Lyons Sanitary Urn	23
J. B. Ford Company	24
Taylor Instrument Company	25
L. W. Luellen	26
Horlick's Malted Milk	27
Wallace & Tiernan Company	28

Final Programs. Preliminary programs are published in this issue of the JOURNAL. Final programs will not be available until the Annual Meeting, when a copy will be handed to each member and guest who registers. Laboratory programs, which are not available as we go to press, will appear in the final program.

Reduced Rates. Reduced railroad rates are available to members of the Association and dependent members of their families. The discount is 25 per cent. An identification certificate was mailed to each member of the Association about September 21. This certificate must be presented *at the time of purchase of tickets.* Members and guests who plan to attend the meeting, even if only tentatively, are urged to notify the Association of their intention. For approximate fares from various centers see page XVIII.

The Cleveland and Buffalo Transit Company has arrangements whereby passengers holding tickets via N. Y. C. R. R. or N. Y. C. & St. L. R. R. between Cleveland and Buffalo in either direction may use the same on C. & B. Line Steamer. To secure this optional feature passengers should notify the train conductor before reaching Cleveland when eastbound, or Buffalo when westbound. The ticket should be presented to the purser at the steamer. This enables a passenger to break his trip and enjoy a beautiful sail on Lake Erie.

Entertainment. There will be a reception to members and guests on the first evening, Monday, October 16.

On Tuesday afternoon, October 17, a limited number will be able to visit the interesting plant of the National Lamp Works in Nela Park. Registration at the information bureau by Tuesday noon is necessary.

On Thursday afternoon, October 16, there will be a boat ride on Lake Erie, or possibly other form of entertainment in the event of inclement weather.

Women. Wives and daughters of members are invited to be present at the meetings. A committee for the entertainment of women has been provided. Entertainment plans will be anonunced in the final program and also in the *Daily Bulletin.*

EDITORIAL SECTION

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THE EMBARGO ON SYNTHETIC DRUGS

Congress has recently removed the present embargo against the importation of dyes and related medicinal products, such as salvarsan, novocaine, and cinchophen. The lifting of the embargo has been strenuously objected to by the manufacturers of these products, and they have been joined by a considerable number of medical and public-health men. The argument is that unless the United States protects these industries thus, they will not be able to meet competition from Germany, and will decline or perish completely.

No one will deny that the situation of the United States during the recent war, when the supply of many essential drugs manufactured in belligerent countries was cut off until our own chemical technicians could come to the rescue, was a serious menace. If the embargo could be enforced without the terrific increases in cost to health departments, laboratories, hospitals, and the public, that are likely to accompany it, this would surely be wise. But we are asked to pay insurance against medicinal shortage at the rate of many millions of dollars a year in order to be prepared for possible future wars. Our chemical industries managed to rally their forces during the late war, and they would be able to do it again.

The present status of the dye and synthetic drug schedule is detailed in the Legislation section of the Journal. The Senate passed the bill without a formal embargo provision, but with prohibitively high tariffs on these commodities which would have much the same effect. At this writing the bill is in the joint conference committee, and this schedule is likely to be a point of sharp controversy on both sides. It is to be hoped that a reasonable policy will prevail that will permit sufficient importation to keep prices within the reach of the ultimate consumer.

RADIO CONTROL

On general principles of Americanism, we are opposed to censorships of all types. Likewise, ethics and sociology quite aside, we are skeptical of their effec-

tiveness to remedy the conditions aimed at. Nevertheless, advocates of censorship frequently have a plausible case, provoked largely by the abuses of those who control the avenues of expression and opinion. Every new medium of public communication brings in its train this problem. The recent phenomenal development of wireless telephony is no exception. The incalculable potential influence of the radio on the public mind is just beginning to be appreciated. Who is to determine the material that is to be broadcasted? So long as programs are confined to announcements of the correct time, baseball scores, "Uncle Wiggily" bedtime stories, and such-like items, there is little to fear. But when propagandist agencies of every description begin to utilize the ether waves, the question becomes serious. Especial opportunities for the dissemination of biased or misleading information are offered in the fields of personal and public hygiene.

A case in point is a recent talk broadcasted from WJZ at Newark on "A Message of Hope for the Cancer-Stricken." This was given by a woman of no scientific standing, under the auspices of a magazine which is widely known for its opposition to scientific medicine. According to one of the leading authorities on cancer research in this country, the talk contained unsound advice. On another day a talk on "Vitamines" was broadcasted by a representative of a manufacturer of commercial food products.

The dangers of such a development are obvious. The Public Health Service and the state boards of health have used the radio to good effect in spreading sound popular health education. But the owners of the great broadcasting stations must learn, as has the motion-picture industry and the legitimate theater, the necessity of voluntary control. They must seek the coöperation of men and institutions of the highest standing in their respective fields, and must beware the taint of commercialism, if their liberty is to survive unchallenged. The American people are capable of a fanatical degree of intolerance when roused by repeated excesses. Those who prefer moderation to extremity would do well to remember this.

A GREAT SOUL PASSES

We are too near to his death to realize the full stature of Stephen Smith. The Association will pay public homage to his memory at the Cleveland meeting, and the JOURNAL will at some future time give more recognition to the occasion than is here possible. Let it suffice at this time to bring to mind again the great lessons that his life enforced: the dependence of longevity on true biologic and hygienic living; the courage of the pioneer in the face of almost hopeless obstacles; the spirit of public service which counted personal gain as nothing; the upward and forward vision of its great men which makes possible for humanity a measure of social progress.

VERBUM SAP.

The Association, like everybody who has something to sell, has a collection problem. And like everybody else, again, it tries to "break the news" to its well-meaning but absent-minded members as gently as possible. We don't like to hurt anybody's feelings unnecessarily. On some of the statements a neat little slip is attached with seals, reading: "Evidently this bill has escaped your attention. It is 3 months overdue." One of our friends responded with a check for $5.00, and pencilled on the margin the contrite admission, "Even so."

Have you, perchance, anything on your conscience? Is it possible that your name is now reposing in that popular "three-months" file? Do it now!

ASSOCIATION NEWS

LIST OF NEW MEMBERS

Proposed for election to the A. P. H. August 1 to August 30, inclusive.
Names of Sponsors are set in **Bold Face Type.**
Names of New Members are set in Light Face Type.

ARKANSAS

Mr. Edwin R. Voight, Fort Smith, Ark.
R. F. Parks, M. D., 1018½ Garrison Ave., Fort Smith, Ark, Health Officer.

CANADA

J. W. S. McCullough, M. D., Toronto, Ontario.
Mr. D. S. McKee, Box 1056, Sudbury, Ontario.

CONNECTICUT

B. N. Pennel, D. V. S., New London, Conn.
Helen Burton Todd, M. D., 95 Oneco Ave., New London, Conn.
Resident Physician, Connecticut College, Instructor in Hygiene.

MASSACHUSETTS

Lee K. Frankel, Ph. D., New York, N. Y.
Miss Frances Stern, 3 Fuller St. Brookline, Mass.

MEXICO

A. Brioso Vasconselos, M. D., Mexico City, Mex.
Mauro Loyo, Vera Cruz, Mex.

NEW JERSEY

C. E. Terry, M. D., Darien, Conn.
Miss Mildred Pellens, A. B., 86 Porter Place, Montclair, N. J., Committee on Drug Addictions Research.

NEW YORK

Mr. Kenneth M. Gould, New York, N. Y.
John Winters Brannan, M. D., 48 West 51st St., New York, N. Y., Surgeon.

OHIO

Mr. A. W. Hedrich, New York, N. Y.
J. J. Thomas, M. D., 1110 Euclid Ave., Cleveland, Ohio.

PENNSYLVANIA

Lewis A. Klein, V. M. D., Doylestown, Penna.
George Webster Grim, V. M. D., Ardmore, Penna., Veterinarian-Health Duties.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 10th of each month for publication on the 20th. Mail to New York office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in New York City. In replying give age, professional training, salary requirements, previous positions held and three or more references.

Government Needs Reconstruction Aides and Assistants in Rehabilitation of Disabled Veterans.—The United States Civil Service Commission states that there is urgent need at the hospitals of the Veterans' Bureau for reconstruction aides and assistants in occupational therapy and physiotherapy in connection with the rehabilitation of disabled soldiers, sailors, and marines. The Commission will receive applications for these positions until further notice. Both men and women are admitted to examinations. Applicants are not required to report for a written examination, but are rated upon the subjects of education, training, experience, and physical ability.

Full information concerning salaries and requirements, and application blanks, may be secured from the United States Civil Service Commission, Washington, D. C., or the board of civil service examiners at the postoffice or customhouse in any city.

Wanted: One dairy inspector and one milk plant inspector to fill vacancies on milk control staff in large southern city. Applicants should hold a recognized degree of an agricultural college and possess preferably public-health experience in milk control. Salaries range from $150 to $200 per month depending upon experience. Address 497, L. C. B., care of this JOURNAL, New York address.

Wanted: A bacteriologist in the City Health Department of Joplin, Missouri. One who examines the milk by United States Public Health Service standard method. References required. Address City Health Department, Joplin, Missouri.

Wanted: A field investigator with training in nursing and social case work for temporary work in New York City. Salary $125 per month. Address A. B. C. 500, care of this JOURNAL, New York address.

Wanted: By a voluntary health organization in New York City, a man or woman, preferably with experience in public-health investigations, to act as statistical assistant and office manager, and assist in preparing report of a study now being conducted. Salary $2,000. Address 499 A. S. N. care of this JOURNAL, New York address.

Wanted: A thoroughly trained statistician for a health and sociological investigation in New York City. Salary according to experience. Address 501 G. H. N., care of this JOURNAL, New York address.

LETTERS TO THE EDITOR

Suicide Among Physicians

TO THE EDITOR:

Among the professions of the United States, physicians head the list of suicides for the year 1921. The following figures are interesting:

Doctors	86
Judges	57
Bank Presidents	37
Clergymen	21
Editors	10
Mayors	7
Members of the Legislature	7

This record seems to indicate that the occupational strain is greater in medicine than in any of the other professions. Should not our scheme of medical practice, as relates to hours and relief, be revised and, if so, how should this be accomplished?

We should be pleased to have you give this matter publicity in order that we may secure a number of replies, and we would be pleased also to receive any suggestions that may be helpful to these over-worked and breaking-down members whose lives can ill be spared and many of whose untimely ends could be postponed if given adequate consideration.

S. DANA HUBBARD, M. D.,
Director, Bureau of Public Health Education, New York City Department of Health.

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"Massage and Exercises Combined"

TO THE EDITOR:

Concerning the review of my book *Massage and Exercises Combined* (the title was incorrectly given in the review as *Massage and Corrective Exercises*), in your JOURNAL of May, permit me to state the following:

The reviewer states: "Because the best physiological results are obtained through massage when all the muscles of the patient are soft and relaxed, it would seem, therefore, that in taking exercises and giving massage at the same time the result would be neither good exercise nor good massage."

Those who have carefully studied the book have been rather surprised by such a statement, for the reason that practically in every exercise the muscles of the parts massaged are, and can be, relaxed when being massaged. For instance, in No. 3 exercise, a person exercises his muscles of the arms, shoulders, and upper back while massaging his legs and abdomen, but the muscles of legs and abdomen are relaxed. On page 37 I state especially that "the abdominal muscles should be neither distended nor contracted but kept in a natural position."

The reviewer also states: "All exercise, if sufficient resistance is employed to bring out the full contractile force of the muscles, is a process of massage in itself." If by that he means that a general exercise has the same beneficial effect as scientific massage movements, people experienced in the latter will not agree with him.

Of course, the reviewer carefully uses the phrase "it would seem," but when not being sure he could have been rightly informed by the letters in the book from prominent physicians, testifying to the beneficial effects obtained from the use of the combined exercises

and the massage movements therein. Nevertheless, he concludes with: "It is to be regretted that the physiology of exercise and massage are not better understood," and "With a little more of this knowledge for a background, the fallacy of the Yogis concentration exercises would become apparent."

Has the reviewer also overlooked the fact that in the book I say: "the essential characteristics of the Yogis exercises," which is something different from the way these exercises were used originally.

It is to be regretted when a reviewer does not study more carefully the book he reviews, and misleading statements occur.

ALBRECHT JENSEN.

Editor's Note.—The price of Mr. Jensen's book is $2.50. It can be obtained from the author at Box 73, General Post Office, New York City.

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BOOKS AND REPORTS REVIEWED

Practical Preventive Medicine. *Mark F. Boyd, M.D., M.S., C.P.H. Professor of Bacteriology and Preventive Medicine, Medical Department, University of Texas. Philadelphia: W. B. Saunders Company,* 1920. *Pp.* 352. *Illustrations* 135. *Price* $4.00.

This excellent condensed presentation of the large and expanding field of preventive medicine is a welcome addition to a rapidly growing list of good books on subjects pertaining to the public health. It will probably prove of particular value and interest to students in medical schools and others who are required to have a brief course in public health or preventive medicine. It will also prove to be a fruitful source of information and ready reference to all students and workers in public health.

As the author says, the information contained in the book has been derived from all available sources, and there is nothing that is particularly new in its contents. Nevertheless, it is an unusually complete manual for a book of its size and is logically and systematically arranged. The book is also replete with numerous illustrations and diagrams, which considerably facilitate the understanding of the text, and materially increase its value.

MURRAY P. HORWOOD, PH.D.

Physic and Fiction. *S. Squire Sprigge. London: Hodder and Stoughton,* 1921. *Pp.* 307.

This is a series of essays on subjects that are unrelated, except as they all tie in with the practice of medicine, curative or preventive.

The readers of the AMERICAN JOURNAL OF PUBLIC HEALTH will be principally interested in the chapter entitled "Public Developments of Medicine." In this, the author not only discusses the new British Ministry of Health, its genesis, its purposes, and the conditions which must be met if it is to be successful, but he also takes up such other questions as practice under the National Insurance Act and methods of educating and training physicians.

His chief objection to the national insurance plan is that it offers too large rewards for the beginner, and too little opportunity for advancement. "It is clear to every one that in the public employment of the future, some flexible system of promotion will have to be laid down, so that the inexperienced man does not receive as much money as his senior." He has proposals to make. These are in the direction of extension of the act to groups of physicians not now practicing under it.

His recommendation for change in the method of training physicians is that they

be more under the influence of men of clinical experience. In this he is in accord with the views of Sir James Mackenzie, and in disaccord with the trend of opinion in America.

Prompted by the wave of interest in spiritism, most of us will turn next to the essay on "Primordical and Other Stuff." On this question he is receptive, as all medical men should be on all subjects, but he has not been much impressed by Sir Conan Doyle. Sir Oliver Lodge has intrigued his interest to a greater degree.

"They All Lived Happy Ever After" is an essay devoted to a compulsary health certificate as a requisite for marriage. The author is opposed to such legislation for more reasons than one. He contends that the story of the Jukes has been distorted so as to have a meaning quite the opposite of the intention of Dugdale. The influence of this chapter is lessened by a few such careless statements as "All the world knows tuberculosis to be hereditary" and "Malignant disease, which all the public knows to be distinctly hereditary, cannot be proved to be anything of the sort."

In lighter vein are the entrancing citations from "Fiction" and other literature. Physicians might profitably read this book for cultural reasons alone.

W. A. EVANS, M.D.

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Child Health in Erie County, New York. *National Child Health Council. Published as Supplement to "Mother and Child," May,* 1922. *Pp.* 90.

The uniqueness of method and distinction of purpose which dominate this study and report give it a character commanding attention in the midst of a multitude of "studies," "investigations," and "evaluations." The report is that of a brief coöperative inquiry into conditions relating to child health and the agencies for dealing with them, in the rural sections and villages of Erie County, New York, November-December, 1921.

National health organizations have already made much progress in the coördination of their work at headquarters. Correlation of work in the field, however, counts for as much if not more. This study is the first step toward finding the means of accomplishing such field correlation. Eighteen organizations in Erie County (which contains Buffalo) joined in requesting the inquiry and eight organizations participated in the study through a staff member or delegated representative. Seven other organizations and numerous individuals contributed to the preparation of plans and material. The report is thus itself an excellent example of coördinated effort. The study was made not merely to ascertain existing conditions, but had as its chief object the development of strong and effective coördination of local health work in the interests of an adequate and balanced child health program. No recommendations are made to increase the comprehensiveness of the program of local child health activities at the expense of local coördination. The three major recommendations which are made therefore deal with present conditions in Erie County and are not necessarily considered applicable elsewhere. These recommendations follow:

> "1. It is recommended that a county health council be formed, consisting of those public and private agencies with county-wide interests which stand ready to unite in the promotion of health throughout the rural sections of Erie County; also that this council employ a paid executive and clerical help from private funds, the executive to be selected by the entire council.
>
> "2. It is recommended that the county health council draw up and present to the County Board of Supervisors a budget for county health work which shall be adequate to centralize this work and to make it genuinely effective for the county.
>
> "3. It is recommended that the county health council and the public officials of Erie County use every effort to make it possible for the local school districts of the county to be enlarged through combinations on a basis that is sound and satisfactory."

It is to be noted that the solution of Erie County's problems is left to Erie County. No particular program, public official, or budget is recommended.

As for conditions in Erie County itself, its health problems are serious, but not more so than those in hundreds of other counties similarly situated. Like many counties its attention to the health of its citizens is slight and chief provisions along this line are funds

for the care of sick patients in institutions. The money expended on charitable work is far in excess of that expended for preventive work. The excellent supervision by the State Health Department of local health work merits praise. But when it is realized that the local health officer is paid an average of but $375 per annum, it is easy to understand why further progress cannot be made without improvement in the entire system. Similarly when a physician devotes less than two minutes to the examination of each school child, it is not an indictment of medical examination in general but of present methods in the county of providing for this necessary work. In the schools a beginning has been made in the subject of health education by the superintendents and the Junior Red Cross.

A county health officer, nurses, helping teachers trained in health work, and a medical director of schools would be powerful factors in developing a really strong and effective county health unit. It is believed that the demand for these officials and others would be productive of results through the united efforts which could be assembled in a county health council.

In substance and in style this report invites sympathetic perusal and compels favorable comment.

HOMER N. CALVER.

✣

Health Dramatics, Fairy Plays and Pageants. *Halsey Stryker. Philadelphia Health Council and Tuberculosis Committee, 10 South 18th Street, Philadelphia.*

There are four skits written and staged by Miss Stryker, with two characters in each skit. The characters are students of the Philadelphia School of Elocution and Oratory. These are: *Pierrot and the Health Fairy, The Health Fairy and the Rag Baby, The Health Fairy and the Witch,* and *The Health Fairy and the Flower Child.*

Two pageants, *The Town of Promise* and *The Queen of the Harvest,* written and staged by Miss Stryker, are ready for circulation at 10 cents a copy.

These plays and pageants are spreading the truths of health all over the country, telling in a charming way how unhappy or ill-treated fairies become happy, laughing, singing fairies because of fresh air, good food, plenty of sleep and other health habits.

A. J.

Miss Jenkins' Sketch Book. *Elizabeth Jenkins. Child Health Organization of America, 370 Seventh Avenue, New York City. Price 25 cents.*

Twenty-four rhymes tell the origin and history of many of the fruits and vegetables. Each verse is accompanied by a beautiful sketch which may be colored. In the back of the book there are directions for coloring, and suggestions to teachers who may use it in connection with lessons in geography and history. There is just enough information to make a child get out the encyclopedia and hunt for more. The rhyme relating to the pea is typical of the pleasing way in which the various subjects are treated:

When Asia's ancient splendor bloomed
I flourished there; my seeds entombed
Were found in Egypt, so my age
Is written clear on history's page.
Yet older still than this am I,—
I grew before Swiss lakes went dry.

A. J.

✣

Population and Its Distribution. *Compiled and published by the J. Walter Thompson Company, New York City. Third edition, 1921. Pp. 335. Price $5.00.*

Vital statisticians who are interested in problems of population may increase the usefulness of the statistics of their communities by a comparative analysis of those other communities of the same class. This publication of a prominent advertising firm, though designed primarily for the benefit of the sales departments of its clients, will be found of great assistance to statisticians of all kinds. Based on the Census of 1920, it does not, of course, possess the authority of a Census Bureau report, but the work has been constantly checked in consultation with the Bureau, whose officials coöperated heartily in its preparation. The book has now been revised three times since the 1910 Census.

It contains lists of all towns in the United States of more than 500 inhabitants, classified in each state by population groups. An outline map of each state is given showing the location of the more important cities. A wealth of useful information is tabulated, such as percentage of the population of the United States, number of towns in each population group, population of urban and rural territory, number of farms, postoffices,

autos and trucks, telephones, electrically wired houses, railroad mileage, mileage of rural and improved roads, number of families, Negro population, etc There are tables of summaries of state data, tables giving ranks of states and cities in the country, with percentages of increase in the last decade, personal and corporation income tax returns by states, subscriptions to Fourth Liberty Loan, and distribution of retail and wholesale dealers in states and cities, classified by 30 representative trades.

The value of such a compilation in solving commercial problems of salesmanship is self-evident. As a general reference book and manual in social and public-health research as well, it cannot fail to find a place.

K. M. G.

✢

The Endocrines. *Samuel W. Bandler, M.D., professor of gynecology, New York Post-Graduate Medical School. Philadelphia: W. B. Saunders Company,* 1921. *Pp.* 486. *Price,* $7.00.

A book from an authoritative source, yet nevertheless disappointing both as to content and treatment. It consists of lectures to medical students, evidently delivered extemporaneously in primer style, full of repetition and digression, jokes and irrelevant advice. It needs cutting, editing, and general revision to make an acceptable textbook.

Information on the structure of the ductless glands is inadequate, and their functions are dealt with chiefly in the field of gynecology and obstetrics. Case histories illustrating the author's endocrine therapy in sterility, dysmenorrhea, and pregnancy, etc., are extensive, pluriglandular extracts being the method used. The discussion of interaction of the various glands is perhaps the chief contribution of the work.

The chapters on the relation of endocrines to instincts, emotions, mental defects, neuroses, and psychoses offer no new material. Dr. Max Schlapp contributes a chapter on mental deficiency and criminality in which he discusses emotional disturbances and suggests the possibility of a definite glandular defect for each criminal type.

MIRIAM C. GOULD.

✢

High Schools and Sex Education. *Prepared by the United States Public Health Service, in collaboration with the United States Bureau of Education. Edited by Benjamin C. Gruenberg, Ph. D. Pp.* 98. *Washington, D. C.,* 1922.

This manual is designed to set before the thousands of teachers in high schools who may be able and desirous of assisting their pupils to meet the problems of sex, the observances and experiences of those who have already been dealing with this subject. The book is divided into two parts, the first considering general aspects and the second taking up sex education in the subjects of the curriculum. The way in which sex education may fit into the courses in biology, general science, physiology, physical education, home economics, social studies, and English, are described in this latter part. The actual methods and supplementary devices are outlined in the first part. This book should be useful to educators and teachers who have to cope with this important subject.

J. A. T.

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PUBLIC HEALTH NOTES

Abstracted by D. GREENE, M. D., JAMES E. TOBEY, LL.B., HOMER N. CALVER and MAYO TOLMAN.

Massachusetts Institute of Technology Department of Biology and Public Health.—The coöperative arrangement between Harvard University and the Institute is still in effect, but the Harvard-Technology School of Public Health no longer exists as such. Under the present arrangement Harvard students may come to the Institute for certain courses, and students at the Institute who are candidates for the Certificate in Public Health may go to Harvard for certain courses as they have gone in the past. The opportunities for the student, therefore, are not changed, but the choice rests with him as to where he shall register, according to the degree which he prefers to secure.

The C. P. H. degree will be given by the Institute on the same basis as it has been given in the past by the Harvard-Technology School, also M. S., Ph. D. and Sc. D. in public health and biology will be given as formerly, and S. B. will be given in either public health or industrial biology, which includes the relatively new field of fisheries engineering, in which training for specialists has begun. Women are accepted at the Institute on the same basis as men.

The new school of Harvard will offer the degrees of B. P. H., M. P. H. and Dr. P. H. The Institute will again offer a one-year course in health education for the training of specialists to supervise instruction in the public-school system. This is open to college graduates, public-health nurses, normal school graduates, and graduates in physical education. For information apply to Prof. S. C. Prescott, Department of Biology and Public Health.

✣

Heavy Breakfast for Brain Workers Advocated by Physicians.—A substantial breakfast followed by a light lunch is the healthiest regime for those engaged in sedentary occupations. That is the overwhelming conclusion reached in a survey conducted by the Medical Review of Reviews among leading physicians of the country.

Forty-six states, represented by physicians including commissioners of health of state and city, show an overwhelming majority in favor of the heavy breakfast. Seventy-three per cent in favor of starting the day with a substantial meal; 13 per cent opposed to a heavy breakfast; 14 per cent inconclusive answers, is a summary of the replies.

Dr. S. J. Crumbine, executive office and secretary of the Kansas State Board of Health, says:

"It is my judgment that the day should be started with a fairly substantial breakfast, and that the noon lunch should be light so as not to interfere with vigorous mental or physical effort of the day's work."

Dr. F. J. Underwood, of the Mississippi State Board of Health, feels that "it is preferable to start the day with a fairly substantial breakfast, consisting of fruit, cereal, bacon and eggs, etc., eat a light but nourishing lunch, and have the heavy meal at six in the evening."

Among those advocating a hearty breakfast are Dr. Eugene R. Kelley, commissioner of health of Massachusetts, Dr. L. B. Gloyne, commissioner of health and sanitation of Kansas City, Kan., and Dr. Herman N. Bundesen, commissioner of health of Chicago.

Several of the physicians compared the physical needs of man with those of the lower animals. Dr. H. E. McNutt of Aberdeen, South Dakota, writes: "If a farmer were to take out his team at the usual early hour to do the usual hard day's work, and he should feed them a scanty meal or no meal at all, he would receive the condemnation of all men."

A few stated their belief that no hard and fast rule could be laid down, but that it depended entirely on the individual.

Ten physicians said that a light breakfast, a light lunch and a heavy dinner is the schedule best adapted for the business or professional man. Seven believed that the mid-day meal should be the heaviest; breakfast and supper light meals.

✣

The National Exposition of Chemical Industries was held in New York at the Grand Central Palace from September 11 to 16. The Exposition covered four floors, making a show-room of vast proportions. Raw materials and machinery for the numerous industries controlled or influenced by the chemical industry were the main feature. Special sections were given over to the latest ideas in industrial fire and explosion prevention and fire-fighting apparatus. Meetings and scientific discussions were held each afternoon under the auspices of various chemical organizations. Among the papers read were several dealing with apparatus and methods for safeguarding employees in the chemical industries.

✣

The American Dietetic Association will hold its fifth annual meeting in Washington, D. C., October 16-18, with headquarters at the New Willard Hotel. Speakers of national importance will discuss recent developments in dietetics, as well as administrative and other practical problems of the dietitian. Also trips to Walter Reed Hospital and the scientific laboratories of the government will give excellent opportunities to observe the

research work now carried on in Washington. An exhibit of equipment, food materials, charts and other illustrative matter valuable to the dietitian will also be an attractive feature of the convention.

✠

New Assistant Surgeons General for the U. S. Public Health Service.—The appointment of six new assistant surgeons general as chiefs of the administrative divisions of the United States Public Health Service has been announced, effective September 1, 1922. The changes are as follows:

Dr. C. C. Pierce has been succeeded as chief of the Division of Venereal Diseases by Dr. Mark J. White, who was formerly in charge of the Speedway Hospital in Chicago. Dr. Pierce will go to Chicago as district supervisor of the Public Health Service, a new arrangement by which he will have charge of several states with headquarters in Chicago.

Dr. A. J. McLaughlin is succeeded as chief of the Division of Domestic Quarantine by Dr. W. F. Draper, who has been in charge of rural hygiene work in Virginia. Dr. McLaughlin, who is president of the American Public Health Association, will have supervision of a district, similar to that of Dr. Pierce, but with headquarters in New York.

Dr. C. H. Lavinder, formerly chief of the Marine Hospitals and Relief Division, becomes executive officer of the Public Health Service and is succeeded by Dr. F. C. Smith, who has been at the head of the tuberculosis section of the Division.

Dr. A. M. Stimson, recently assistant director of the Hygienic Laboratory, becomes chief of the Division of Scientific Research in place of Dr. J. W. Schereschewsky, who goes to Boston to engage in cancer research.

Dr. R. H. Creel is relieved as head of the Division of Foreign and Insular Quarantine and Immigration and is succeeded by Dr. J. D. Long, who has recently been attached to the U. S. Veteran's Bureau and was formerly executive officer of the service. Dr. Creel goes to San Francisco in charge of the Angel Island Hospital.

Dr. B. S. Warren's place as chief of the Division of Sanitary Reports and Statistics is assumed by Dr. B. J. Lloyd, and Dr. Warren takes charge of the Marine Hospital at Baltimore.

These changes are made in accordance with the regulations of the Public Health Service and the policy always maintained by the Bureau in placing administrative heads in charge of divisions for four years only. With one exception all of the above-mentioned division chiefs have completed their four years' tour of duty in Washington. During these years the Public Health Service has made great progress, perhaps the most notable accomplishment being the organization and administration of the hospital system for the care of the ex-service men. The Surgeon General is Dr. Hugh S. Cumming.—(*J. A. T.*)

✠

Allen T. Burns Appointed Director of the National Information Bureau.—The directorship of the National Information Bureau, which has been vacant since the resignation of Barry C. Smith to become director of the Commonwealth Fund on July 1, 1921, has been filled by the appointment of Allen T. Burns. Mr. Burns has been a member of the board of directors and the executive committee of the Bureau since 1919. After being closely identified with the Cleveland Foundation and the Cleveland Welfare Federation, he served for several years as the director of the Americanization Study conducted by the Carnegie Corporation. Upon completion of the Study he became permanent arbiter in the garment industry of Rochester, New York, from which service he comes to the Bureau. Mr. Burns was president of the National Conference of Social Work for 1921 and is at present its first vice-president. During Mr. Burns' absence in Russia Geddes Smith will continue to serve as acting director of the Bureau.

✠

To Investigate Relief in Russia.—The appointment of a special commission to undertake an investigation of the entire Russian relief situation marks the beginning of one of the most important and most difficult enterprises ever undertaken by the National Information Bureau. The problem of American relief in Russia has assumed enormous proportions during the past year. Propagandist efforts from many sources have made it difficult to interpret accurately the conflicting and even contradictory reports as to Russia's need for immediate relief and future help. In accordance with

the Bureau's established policy of basing its reports on first-hand investigations, it has had no choice but to undertake to determine the facts of Russia's need independently.

Allen Wardwell of the law firm of Stetson, Jennings and Russell, New York; Graham R. Taylor, executive secretary of the American Association of Social Workers, and Allen T. Burns, the new director of the Bureau, make up the commission, which sailed for Moscow by way of Paris and Berlin on August 2nd.

While reports as to the famine situation indicate that the food needs of Russia will be met, at least on a minimum basis, after the harvest is in, reports of medical and sanitary conditions are disquieting, and the commission will make a special study of public-health problems. It has been fortunate in securing, to conduct this study, Dr. Henry O. Eversole, who has just completed a brilliant piece of work in Czechoslovakia as American Red Cross Commissioner.

The investigation has been formally endorsed by the American Relief Administration, the American Red Cross, the American Friends' Service Committee, the Joint Distribution Committee, the American Medical Aid for Russia, and the American Committee for the Relief of Russian Children. Every facility has been put at the disposal of the Commission by these agencies, and Russian authorities, in view of the strictly non-political nature of the investigation, have also promised full coöperation.

A general report covering the findings of the Commission will be available for members, it is hoped, in November. This report will estimate the efficiency of relief work now being done and attempt to outline the probable need for American help during the coming year.

✠

Directory of New York City Health Agencies.—The fourth edition of its list of public-health agencies in New York City was issued in June, 1922, by the Health Service of the New York County Chapter of the American Red Cross. This edition lists 109 health agencies in the city and gives a brief description of each. Also included are classification, subject, and personnel indexes. The pamphlet is mimeographed and contains 39 pages. It is a very useful reference book for those who wish to know something of the organizations in the health field in New York City. Similar compilations would be useful in other cities.

✠

Bureau of Mines Health Work.—The health activities of the United States Bureau of Mines are described in a report recently issued by the National Health Council. This report outlines the history and development of the Bureau, its legal authority, organization, personnel, appropriations, and coöperation with other agencies. The report is the ninth in a series concerning those activities of the U. S. Government which deal directly or indirectly with the public health. It is planned in the near future to combine all of these reports in a single printed pamphlet, thus offering for the first time correlated, accurate and impartial data concerning the public-health work of the government. Copies of the Bureau of Mines Report, or of any of the others, may be obtained without charge from the Washington office of the Council, 17th and D Streets, N. W.

✠

"Health Days" Postponed.—The National Health Council's General Committee on Health Days has, after careful consideration, voted unanimously to recommend to the Council the postponement indefinitely of the proposed Health Days.

This action was taken because of the advice of the chairman of the Council of Health and Public Instruction of the American Medical Association, and of a trustee of the American Medical Association, that there will be no opportunity to insure the coöperation of the organized medical profession of the country until the Health Days plan has been placed before the convention of secretaries of state medical societies. As this convention does not meet until November, it will be impossible to adhere to the dates originally set, namely December 8, 9 and 10.

In view of this action all Health Days organization work has been brought to a standstill for the present. It is expected that the project will be presented to the convention of secretaries of state medical societies and that a satisfactory arrangement will be the result.

Treatment of Antenatal Syphilis.—Fordyce and Rosen urge that every prospective mother should receive a routine Wassermann reaction. The proper treatment of a syphilitic mother during pregnancy will undoubtedly result in the birth of a healthy infant. Every infant born of a mother or father with syphillis should have a Wassermann test made at birth; again two weeks later, then every four weeks up to the sixth month, and after that every three months up to two years. If the reaction is negative with all these tests and no clinical signs have appeared, the baby has in all probability escaped the infection. Occasionally an infant with active clinical signs of syphilis will give negative serological findings, usually only temporarily. The clinical diagnosis should always take precedence over the laboratory diagnosis and proper treatment should be instituted. In the treatment of patients having congenitial syphilis the authors have adopted as the method of choice, the systematic intramuscular injection of neo-arsphenamine and mercury. They have been able to obtain negative reactions in 14 infants out of a total of 47 with four plus blood reactions, when the treatment was begun within the first few months.—J. A. Fordyce and I. Rosen, *Arch. of Dermat. and Syphilology*, Jan., 1922, 1. *(D. G.)*

✣

Etiology of Pneumonia.—The time has come when medical men should think of pneumonia in terms of the causative agent rather than in terms of anatomy or pathology. It would seem that the character of the infectious agent in pneumonia is more significant from the standpoint of treatment and prognosis, than the location or the type of lesion. An accurate bacteriologic examination of the sputum is therefore necessary before serum treatment can be rationally applied. If pneumococcus is demonstrated in the sputum the type must be determined. If pneumococcus type I is present the administration of type I serum is to be seriously considered. In case streptococcus hemolyticus is present the physician must watch the circulation and be on guard for abscess and empyema. If nothing but streptococcus viridans is present the prognosis is excellent. The influenza bacillus will only rarely be found in pure culture, but its presence in large numbers should be considered significant. In such cases there is danger of slow resolution and chronic bronchitis with occasionally emphysema and bronchiectasis. In cases in which resolution is delayed the sputum should always be searched for tubercle bacilli.—R. L. Cecil, *Amer. Jour. Med. Sci.*, July, 1922, 58. *(D. G.)*

✣

Dr. Jacques Bertillon 1851-1922.—The death of Dr. Jacques Bertillon July 7 was reported from Paris with the erroneous statement that he was the inventor of the "Bertillon system for finger-printing," in collaboration with his brother.

Jacques Bertillon was the oldest son of the noted French statistician, Louis Alphonse Bertillon, and was born in 1851. He was for many years chief of the Bureau of Statistics in Paris, and the author of many works on the depopulation of France, the relation of marriage to longevity, the effects of alcoholism on health and morals. He was Chevalier of the Legion of Honor, and an officer of public instruction.

The Bertillon system was invented by his brother Alphonse. It had nothing to do with finger-printing, but was a series of body measurements with instruments of precision. These consisted of the length and width of the head, the length of the fingers, of the left foot, the left forearm and the right ear, the height of the figure standing and sitting, also the extent of the outstretched arms. These required very delicate and costly instruments, the work of skilled men, and it was found that changes in even adult bodies made the system far from infallible. Therefore, though the system is still used in France, in America, Great Britain and elsewhere it has been largely supplanted by the Galton system of finger-printing, or thumb-printing. Sir Francis Galton also invented composite photography and the now familiar term "eugenics."

Alphonse Bertillon was born in 1853 and died in 1914, and was for many years the head of the criminal investigation bureau of the Paris Police Department.

In the January, 1922, JOURNAL will be found a copy of a resolution adopted by the Vital Statistics Section, expressing appreciation of Dr. Jacques Bertillon's untiring efforts to

obtain statistics on causes of death, etc., and wishing him a speedy recovery from an illness from which he was suffering at that time.

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Poisoned Furs.—As early as 1913 Professor Blaschko of Berlin called attention to the dangers of the use of the dye paraphenylendiamin, a violent skin irritant frequently used for converting rabbit skins into "brown beaver." When the fur is wet the irritant properties of the dye or its oxidation product, chinondichlordumin, are enhanced. Recently many severe cases of dermatitis have been reported among women wearing high fur collars.—*Hospital and Health Review* (London), 1:307, August, 1922.

SANITARY ENGINEERING

Condemnation of Land for Public Parks.—The Ohio Supreme Court holds, Nichols v. City of Cleveland, 135 N. E. 291, that where one entire plan has been adopted for a public improvement, and from the inception a certain tract of land has been actually included therein, the owner of such tract in a condemnation proceeding, therefore, is not entitled to an increased value which may result from the improvement, where its appropriation is a condition precedent to the existence of the improvement. It also held that the public and abutting owners do not have such vested rights in the walks and driveways which are laid out and improved as part of a public park. *Public Works,* 53:94, July 29, 1922.

✣

Texas Municipality Supplying Water Cannot Refuse to Supply Tenants of Part of a Building to Make Owner Assume Tenant's Liabilities.—It is the duty of any organization supplying water, to supply it impartially to all reasonably within reach of its pipes. The company or the city cannot escape from its duty to furnish an applicant on demand merely because he is already in receipt of a supply indirectly through the medium of another. Applying these principles the Texas Supreme Court holds, the City of Galveston v. Kenner, 240 S. W. 894, that an ordinance of a city operating its own water supply system having the effect of denying to a tenant the right to water unless he is in possession of the entire building and denying the right to erect buildings for rental unless the owner assume the obligation of paying the tenant's water rents, is unreasonable and void. *Public Works,* 53:94, July 29, 1922.

✣

Acid Treatment of Wool Scouring Waste Water.—The acid treatment of sewage has been in use in England for a number of years but only recently has it been tried out in South Africa. The amount of fat in a single factory's untreated wool scouring waste would clog the sewers with grease and destroy the working of an ordinary sewage farm. The Royal Commission on Sewage Disposal recommended clarification down to 6 parts of suspended solids to 100,000. This method was tried at Wynberg, with the poor showing of 1,143 parts per 100,000 of total fat and experiments were conducted with the acid process. It was found that the sud (waste) must be kept at a high temperature when adding the acid as otherwise sulphurated hydrogen develops. The acid is used in proportion of 1 to 250. The sud and acid should be thoroughly mixed and allowed to cool by standing in the acid tank about 24 hours. The fatty matter rises to the surface and must be skimmed off. By careful skimming it is possible to reduce the free fats in the final effluent to 2 parts per 100,000 and the combined fats to less than 7.5 parts. *Public Works,* 53:90, July 29, 1922.

✣

Wood Water Mains.—Wood was the first material used for water mains in this country. In view of the fact that wood water mains have been found in good condition after having been in the ground a century or more, some engineers have wondered why they are not still more commonly used, particularly as they are much cheaper than cast iron. J. W. Ledoux has shown, however, that the average life of wood pipe is but 25 years, while cast iron lasts 100 years. The discharge capacity of wood is considered to be 20 per cent greater than that of cast iron pipe of the same size. The cost of repairs in wood pipe are assumed as 1 per cent and on cast iron as 0.25 per cent. Taking all these factors into consideration, Mr. Ledoux concludes that at the end of 100 years the use of wood pipe would show a saving of 19 per cent on the basis of present worth. The reason cast iron pipe is so universally used in spite of the financial saving through the use of wood is due in part to the many failures of wood pipe which are all

remembered, and to the fact that cast iron pipe is suitable for nearly all conditions and situations. Mr. Ledoux's paper covers the construction of wood pipe, the value of C. in Chesey's formula that should be used, the conditions under which wood pipe may properly be used, and its proper laying in the ground. It is estimated that 500 miles of wood pipe are laid each year, and that more than 500 municipalities and water companies in the United States are making use of it. *Public Works,* 53:91, July 29, 1922.

✣

Operating Sewage Treatment Plants.—A guide prepared by the Burns and McDonnell Engineering Company probably touches all the points, in a brief manner, that it is necessary to bring to the attention of municipal authorities. The "guide" recommends consulting with the state sanitary engineer in cases of emergency or if unforeseen problems arise such as no guide can possibly cover. The guide discusses the nature of the sewage, the use of bypasses, grit chambers, septic tanks, Imhoff tanks covering under that heading channels, settling chambers, gas vents and sludge chamber, sludge beds, dosing chamber, sprinkling filters, final settling tank, contact filters and sand filters. *Public Works,* 53:92, July 29, 1922.

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Enlarging Harrisburg Filtration Plant.—Harrisburg obtains its water supply from the Susquehanna River, which while affording an abundant source of supply, offers the objection of containing a large amount of coal dust and a high clay turbidity, running up to 3,000 p.p.m., and sewage. The coal dust having a specific gravity only a little greater than that of water passes in considerable quantities into the low lift pumps and thence to the sedimentation basin. While the low velocity permits the sedimentation of a large amount of suspended matter, much of the finer material reaches the filters, which are twelve in number. Contracts have been let for enlarging the entire plant including 8 new filters, a filter house, head house and gate house, new sedimentation and coagulating basin, a secondary intake for winter use and new pumping units. Considerable difficulty has been experienced in the past with needle or slush ice entering the intake and with ice jams that fill the entire river channel, allowing but a small passage of water. It is expected the new intake will eliminate this trouble, as it is protected by a 250 foot concrete jetty which will form a pool of still water below it, allowing the needle ice to float over the intake. Increased sedimentation capacity should take out an additional amount of coal dust. *Public Works,* 53:77, July 29, 1922.

✣

Flushing the Sewers in Waltham.—Waltham, Mass., has 47½ miles of sanitary sewers, including 6 inverted siphons. The sanitary sewers cover about three-quarters of the street lengths reached by water mains. When a fire hydrant is located within 100 feet of a manhole, flushing is carried out by a 2½-inch fire hose connected to the hydrant. As 124 manholes are not so located, they are connected directly with the water mains for flushing. The sewers are also cleaned with ropes, chains, followers and scrapers of different kinds. In 1921 there were 20 stoppages. *Public Works,* 53:81, July 29, 1922.

✣

Problems in the Reforestation of Water Sheds.—Reforestation should be regarded as a necessary waterworks policy, not merely because of its possible economic value, but on the broader grounds of sanitary control, greater stability of run off and conservation of the timber resources of the nation. Mr. Taylor discusses in some detail fire prevention, the varieties of trees to be planted, planting methods and the nature and control of the various diseases that attack the trees. George R. Taylor, *The Canadian Engineer,* 43:207, August 1, 1922.

✣

Activated Sludge.—The experiments of Arden and Lockett showed that by aerating sewage for long periods it then contained a mass of organisms capable of rapidly oxidizing fresh sewage when held in suspension in the liquid in the presence of dissolved oxygen. Originally the oxygen was supplied by forcing compressed air into the bottom of tanks through fine openings. As difficulty was experienced by the clogging of these openings, an attempt was made to separate the two functions performed by compressed air, that of supplying the dissolved oxygen necessary to maintain bacterial life and of agitating the sludge in the liquid. It was found that by suitable agitation of the sludge in open tanks, exactly as

good results could be obtained as with the use of compressed air. The problem confronted was that of preventing a deposition of the sludge and of preventing a constantly changing surface to the atmosphere. Mr. Sheffield's experiments apparently indicate that air in small bubbles is not essential and that in fact it is a question whether the solution of the oxygen does not actually take place at the surface.

The dewatering of sludge is the most difficult and urgent problem that now remains to be solved. Experiments in dewatering by pressing or centrifuging have not proved satisfactory. A new method recently tried that has obtained a dewatering from 98 to 99 per cent content to about 75 per cent almost immediately is that of spreading the sludge in a thin layer on paper maker's gauze and applying a slight vacuum to the under surface. If artificial heat could be used economically rapid drying may be accomplished. The fact that the sludge has a high fertilizer value makes it possible to spend more on its disposal than would be the case with ordinary sludge. *The Canadian Engineer,* 43:193, July 25, 1922.

✣

A New Method of Rating Water-bearing Sands and Gravel.—It has been many years since methods for the determination of "effective size" and "uniformity coefficient" were devised at Lawrence, Mass. These factors or coefficients of physical qualities, while of great value in determining the value of sand for filtration purposes, are not well adapted to serve as an index for rating water bearing sands. For this purpose the author suggests the determination of the "fineness modulus," as brought out by Professor Abrams, using for this purpose sieves having 4, 10, 20, 30, 40 and 60 meshes per inch. To determine the fineness modulus it is only necessary to add together the total percentages by weight that are held on each sieve. From actual experience the writer has found that where the modulus is 100 or less the sand and gravel have little value as a source of water supply and may be classed as very poor; from 100 to 140 as poor, 140 to 200 as fair, 200 to 250 as good, 250 to 300 as very good, and over 300 as excellent. It should be noted, however, that two good sands might vary greatly in the percentage held on the finer screens and still have the same fineness modulus. The best water bearing sand is that with the largest amount of coarse material which naturally is flattest in the upper portion of the curve obtained by plotting the percentages passing each sieve. W. G. Kirchoffer, *Public Works,* 53:64, July 22, 1922.

✣

Refuse Collection in New Orleans.—In the past it has been the custom in New Orleans when a leader in ward politics died, for his friends to present his widow with a dump cart and mule for the collection of garbage. These the city rented at $4.50 a day, including driver. The "widows' cart system" is being displaced by a tractor-trailer system owned by the city and operated by city employees. The trailers are provided with removable containers which, after hauling to the dumping ground, are lifted from the frame in a locomotive crane and spread over burning fires. Owing to the danger of the dumps breeding rats, which may harbor and spread bubonic plague, the U. S. Public Health Service, which is conducting a campaign against that disease in New Orleans, has found it necessary to adopt these precautions.

The present method of disposal is only temporary pending the erection of five incinerators which will have a combined capacity of 400 tons of mixed garbage and refuse in 16 hours. It is guaranteed that the incinerators will operate at a cost of 54 cents a ton for labor, exclusive of the cost of handling cars. *Public Works,* 52:419, June 10, 1922.

✣

Caison Disease Becoming Less Deadly.—Compressed air work has assumed a place of enormous economic importance in modern engineering. According to the U. S. Bureau of Mines, health hazards which formerly were considered concomitant to working under the high air pressures necessary to keep back the water in wet ground, have been greatly reduced. Caison disease or air embolism is caused by a too rapid decompression after exposure to high pressures, and is believed to be due to the formation of bubbles of nitrogen in the body fluids and tissues. The effect of compressed air upon life, health and efficiency of workers is of constantly increasing importance, but as yet no thorough research has been done in this field in the United States. Knowledge of the cause, character and treatment of compressed air illness is still limited to a very few physicians. *The Canadian Engineer,* 42:557, May 30, 1922.

LEGISLATION—FEDERAL

PROGRESS ON MATTERS PREVIOUSLY CONSIDERED

S. 3721. Appropriation for National Leper Home. Favorably reported by Senate Committee on Public Buildings and Grounds, July 20, 1922. Passed the Senate on July 20, 1922. This bill, which passed the Senate without a record vote, appropriates $650,000 to erect additional buildings for the National Leper Home at Carville, La. It was brought out in a short discussion that this was an emergency measure, as the leprosarium is already crowded and its facilities are so limited that it is unable to take care of more patients. Applicants to the number of 100 have asked to be taken in at the hospital for lepers and it is necessary immediately to increase its capacity to 500 beds. The Director of the Budget recently recommended the appropriation to Congress. The U. S. Public Health Service has charge of the lepers' home, and plans eventually to care for every leper in the United States when sufficient funds are available. In the debate it was also brought out that the $650,000 was only a temporary appropriation and that an additional sum will be needed in November or December. This bill after its passage went to the House. (A. J. P. H., Sept.)

H. R. 10871. Reduction of Commissioned Personnel of Army.—In accordance with the provisions of this appropriation act which reduces the commissioned personnel of the regular army by several thousand officers, President Harding has appointed a board of officers and assigned to it the duties of selecting officers for discharge and retirement. The Surgeon General is a member of the board, the president of which is Major General Joseph T. Dickman (retired). The first session of the board was held July 24, 1922, and it will continue in session. In a report of the Chief of Staff the number of officers of the Medical Department to be eliminated is given as follows:

Medical Corps	143
Dental Corps	76
Veterinary Corps	32
Medical Administrative Corps	66
Total	317

This report also sets out the conditions under which officers shall be discharged and retired.

New Hospitals for Disabled War Veterans.

(a) Director Forbes of the U. S. Veterans' Bureau has announced that in accordance with the appropriation act providing $17,500,000 in funds for new hospital sites, he has recommended to the President a hospital at St. Cloud, Minn., to cost $1,000,000, with facilities for between 250 and 350 beds for mental cases. This has received the President's approval. Another recommendation not yet approved is for a hospital at either San Diego or Los Angeles, California.

(b) Assistant Secretary of the Treasury Clifford has announced that the appropriation of $18,600,000 of last year authorizing hospitals to be constructed under the authority of the Treasury Department has been expended, and that a total of 4,051 beds has been supplied by building additions to government hospitals and by the construction of twelve new institutions. These hospitals include facilities for the care of disabled veterans suffering with tuberculosis and mental diseases, surgical cases and general cases.

S. 3858. Defining Butter.—Introduced by Senator Sterling, July 21, 1922. Referred to the Committee on Agriculture and Forestry. This bill, similar to H. R. 12053 (A. J. P. H., Sept.), defines butter as "the food product usually known as butter and which is made exclusively from milk and cream, or both, with or without salt, and with or without additional coloring matter and containing not less than 80 per centum by weight of milk fat."

Government Reorganization.—During a recent visit by Dr. D. B. Armstrong, executive officer of the National Health Council, with Brig. Gen. C. E. Sawyer, the latter stated that the plans for a department of welfare were still under consideration and that the whole government reorganization scheme would be taken up after Congress had gotten such items as the tariff bonus, and ship subsidy out of the way. It is not deemed likely that the reorganization will be taken up at this session, even if the plan were entirely agreed upon, which is not considered to be the case among observers in Washington.

H. R. 7456. The Tariff and Public Health.—The passage of the Tariff Bill by the Senate on August 19 brings up the question as to what will be done on the embargo provi-

sions therein relating to dyes and the related synthetic drug industry. Before the war the United States produced none of these materials and all came from the German chemical sources. Due to necessities created by the war, several hundred plants and laboratories have developed in America, producing salvarsan, cinchophen and novocaine and other important medicinals.

While efforts to continue the embargo provisions of the present Emergency Law did not succeed, prohibitive duties were incorporated, which are regarded as equivalent to an embargo. It was asserted that the manufacture of synthetic drugs and medicinals from coal tar products in the United States during the war could not be continued against German competition, unless amply protected by tariff duty. Among the products in this category are aspirin, novocaine, benzoic acid, phenol and many other similar coal tar products. Such articles will bear a tax of 75 per cent ad valorem and an additional 10½c per pound when unfinished. They will be taxed 90 per cent ad valorem and an additional 10½c in a finished state. The bill places a 25 per cent duty upon chemicals, drugs and medicinals, whether dutiable or free, when they are imported in capsules, tablet or similar forms.

The bill has now gone to conference, as the Senate made numerous changes, but it is expected that a conference report will be adopted about the time this issue of the JOURNAL appears.

H. R. 8086. To Prohibit the Shipment of Filled Milk in Interstate Commerce. Hearings.—A subcommittee of the Senate Committee on Agriculture and Forestry has held hearings from August 1 to August 7 to consider objections to the passage of the so-called filled milk bill, which has already passed the House of Representatives. A large number of witnesses testified on this subject. A sharp conflict has developed as to the merits of the legislation. In view of the conflict in testimony it is probable that no action will be taken by the committee in the near future.

H. J. Res. 297. Prevention of Pollution of Navigable Waters by Oil.—In order to carry out the provisions of this law, which was recently passed by Congress, a conference of government officials will be held at the State Department. The act requests the President to call a conference of maritime nations to consider methods to reduce pollution of navigable waters by oil waste.

H. R. 4. Pensions for Soldiers and Nurses of War with Spain, etc.—Passed the Senate, August 3, 1922. This bill, which passed the House on February 1, 1922, grants pensions to army nurses who served under contract with the army during the war with Spain, Philippine Insurrection or Chinese Boxer campaign for 90 days, or who were disabled and released prior to 90 days' service. The effect of this bill will be to give women who served as nurses the exact pension allowances that are awarded to soldiers in the war with Spain, etc., under the act of June 5, 1920.

NEW LEGISLATION

(Matters not previously considered.)

S. J. Res. 224. Amendment to Constitution Empowering Congress to Regulate Child Labor.—Introduced by Senator Townsend, July 14, 1922. Referred to the Committee on the Judiciary. This amendment to the Constitution provides that Congress may regulate the employment and the hours of labor and conditions of employment of persons under eighteen years of age.

S. 3847. Mothers' Pensions for District of Columbia.—Introduced by Senator Pomerene, July 19, 1922. Referred to the Committee on the District of Columbia. This measure provides for the partial support of mothers through a pension paid by the government upon an allowance made by the Juvenile Court of the District of Columbia. Allowances to women whose husbands are dead, permanently disabled, or who have deserted them, and who have children under sixteen, are fixed by the bill at a sum not exceeding $15 a month for the mother and $7 a month for each child under sixteen years of age.

S. 3898. Care of Dependent Children, D. C.—Introduced by Senator Calder of New York, August 8, 1922. Referred to the Committee on the District of Columbia. This measure is designed to provide home care for dependent children by the appropriation of money out of the public treasury for their support, thus eliminating the necessity of placing them in public charitable institutions. The sum of $100,000 would be ap-

propriated to carry out the provisions of the bill. In presenting the proposed legislation to the Senate Senator Calder of New York made this brief statement:

"This bill provides home care for dependent children in the District of Columbia. It is in line with legislation in many of the larger and more progressive states in the Union. Under its terms a mother having a child dependent upon her for support who is unable without aid to maintain a suitable home and provide proper care for such child shall be given a monthly allowance by the District of Columbia in a sum deemed necessary. In many states where orphan asylums and charitable organizations took these children in their care the state usually allows a certain sum to care for them. Under this system the child remains with its mother, to be brought up under proper home environment."

The terms of the proposed child legislation provide that the commissioners of the District of Columbia shall establish an agency for the administration of the act to whom applications by indigent mothers may be submitted and acted upon. Before granting any application for an allowance for the support of a child the agency shall determine whether the applicant is a fit person, what home conditions are, resources of family, legal status of father and amount of aid needed. No child over 16 years may be a beneficiary.

S. 848. Issuance of Interchangeable Mileage Tickets on Railroads.—This bill, while not a health measure, will be of interest to many sanitarians who do considerable traveling. The bill which was introduced by Senator Watson of Indiana and has passed both Senate and House, directs railroads to issue interchangeable 5,000-mile books. A substantial reduction in railroad fares will accordingly be available to persons taking these books. The rate is not provided, but it is understood that it will be set at 2½ cents a mile by the Interstate Commerce Commission.

PHYSICIANS IN CONGRESS.—Of the 531 members of both houses of Congress, only eight are medical graduates. The great majority of the legislators are lawyers and two of the eight physicians are likewise members of the bar. The medical men in Congress are as follows, the information being taken from the *Congressional Directory*.

SENATORS

Lewis Heisler Ball, Republican of Delaware. M. D. from University of Pennsylvania, 1885. Term expires 1924.

Joseph Irwin France, Republican of Maryland. M. D. from College of Physicains and Surgeons, Baltimore. Fellow of the American Medical Association. Term expires 1923.

Selden Palmer Spencer, Republican of Missouri, is a lawyer, but has an honorary M. D. from Missouri Medical College, where he lectured on medical jurisprudence. Term expires 1926.

REPRESENTATIVES

John Joseph Kindred, Democrat of New York. Studied medicine at University of Virginia and Hospital College of Medicine, Louisville, Ky., receiving M. D. from latter. Post-graduate medical studies at University of New York and University of Edinburgh, graduating in department of mental diseases from latter. Also has LL.B.

Caleb R. Layton, Republican of Delaware. M. D. from University of Pennsylvania, 1876.

Ladislas Lazaro, Democrat of Louisiana. St. Isadore's College, New Orleans. Graduated in medicine, 1894, followed that profession until 1913.

Archibald E. Olpp, Republican of New Jersey. Graduate in chemistry from Lehigh; in medicine from University of Pennsylvania, 1908. Practicing physician.

John William Summers, Republican of Washington. Graduate Kentucky School of Medicine and Louisville Medical College; post-graduate medical studies in New York, London, Berlin and the University of Vienna. Engaged in practice of medicine for 25 years.

Lester D. Volk, Republican of New York. M. D. from Long Island Medical College. For many years editor of the *Medical Economist*. Practiced medicine 1906-1914; is also a lawyer, and since 1913 has practiced law.

In addition to the above may be mentioned Representatives Roy O. Woodruff of Michigan, who is a doctor of dental surgery of the Detroit College of Medicine; George W. Edmonds of Pennsylvania, graduate of the Philadelphia College of Pharmacy, and R. S. Maloney of Massachusetts, who was formerly alderman and director of public health of Lawrence, Mass.

LEGISLATION—STATE

Plans for bulletins on state health legislation for 1923 are now under way. They will be issued by the United States Public Health Service and National Health Council. During 1923 forty-two state legislatures meet.

Georgia

Drugs. H. 692. Prescribing regulations for labeling drugs.

General. An amendment to the Ellis Health Law would repeal that part requiring recommendation of two grand juries to place it in force in any county; and would substitute an election to be called on petition of one-third of registered voters of county.

Tuberculosis. A bill has been introduced giving ordinaries, county commissioners and municipalities power to raise money by taxation for the support of the State Sanitorium for Tubercular Patients at Alto. Maintenance of patients from local communities would be borne on a 50-50 basis by state and community.

Venereal Diseases. A bill would require all male applicants for marriage licenses to have a physical examination for venereal disease. Examinations would be made by licensed physicians or county health officers.

Louisiana

Legislature met in May and adjourned on July 7.

Glanders. H. 413. Appropriating $5,000 to reimburse owners for loss of cattle by glanders was vetoed.

Maternity and Infancy. A bill to accept the Federal Maternity and Infancy Act was vetoed.

Nursing. S. 71. Regulating practice of nursing passed.

Tuberculosis. Bills appropriating $20,000 for maintenance of a sanatarium at $45,000 for establishment of a tuberculosis sanitarium under the joint control of the State Board of Health and a commissioner, were vetoed. A bill appropriating $15,000 to reimburse owners of cattle destroyed for tuberculosis was vetoed.

Venereal Diseases. H. 219. Providing for examination and quarantine of venereally infected persons was defeated in House. A bill appropriating $15,000 for a venereal disease hospital in Alexandria was vetoed. H. 235, which would appropriate $50,000 for a home for delinquent women, was vetoed. A bill was introduced appropriating $25,000 for venereal disease work, 1922-1924, but its outcome is not yet known.

Vital Statistics. S. 102. Providing fee of 25c for doctors and midwives for birth reports passed. A bill to appropriate $10,000 for vault for vital statistics records was vetoed.

Workmen's Compensation. H. 435. To increase medical aid was vetoed.

Maine

The governor of this state has refused to accept the Federal Maternity and Infancy Act by proclamation. He declares that the states are already overburdened with federal control, even though he thinks the provisions of this act are reasonably moderate. The state has appropriated $5,000 for child welfare work to be done by the State Health Department. The governor's opinion is reproduced in the Congressional Record of July 20, 1922, page 11331.

Massachusetts

Maternity and Infancy. The legislature has appropriated $15,000 for maternal and child hygiene for four months to be administered by the State Department of Health.

Tuberculosis. The State Department of Health has been directed to make a study of the whole tuberculosis problem in Massachusetts, with special reference to the management of county and municipal hospitals, and report to the legislature.

Review. An excellent summary of medical and health legislation in Massachusetts during 1922 appears in the *Boston Medical and Surgical Journal*, July 6, 1922, on page 35.

STATE HEALTH NOTES

GENERAL

California

The Board of Supervisors of San Joaquin County, the City Commission of Stockton, the Rotary clubs, Dr. Wm. Friedberger, superintendent of the county hospital, and many other individuals are working zealously to secure the establishment of a full-time health department, under which all of the health departments of incorporated cities in San Joaquin County shall be consolidated with the county health department. The district attorney, Edward Van

Vranken, has been requested to draw up an ordinance putting the recommendations of the supervisors' special committee into effect. Dr. Friedberger is enthusiastic over the establishment of such a department and the movement is also receiving solid backing in Lodi and other San Joaquin cities.

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Riverside is organized for securing a full-time health department for Riverside County. A committee has been chosen, of which Judge Hugh H. Craig is chairman, and E. L. Covey secretary. The Chamber of Commerce, Lions' Club, Rotary Club and the Kiwanis Club all have memberships in this committee. Other individuals who are serving with this organization are J. S. Bordwell, C. H. Randall, W. G. Fraser, W. T. Henderson and Maurice Griffin. Dr. Walter M. Dickie, Secretary of the California State Board of Health, recently addressed members of Riverside's civic organizations, urging the establishment of a full-time health department, the jurisdiction of which should cover all the rural and incorporated territory within the county.

District of Columbia

Under the title of the Post-Graduate School of Neurology and Psychiatry of the District of Columbia, a school for the graduate teaching of diseases of the nervous system has been recently organized in Washington, and will open formally in October. Dr. William A. White, superintendent of St. Elizabeth's Hospital, is president of the institution; Dr. Tom A. Williams, vice-president; Dr. Daniel D. V. Stuart, Jr., secretary-treasurer, and Dr. D. Percy Hickling, dean of the faculty. Two courses of study, elementary and advanced, of six weeks each are to be offered, together with an elective course in special subjects.

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Georgia

Dr. Victor H. Bassett, director of the hygienic laboratory of the city of Savannah, Ga., has terminated his contract with the city, after a service of 14 years, on account of political interference. Dr. Bassett was nominated to the position he has held as the result of a competitive examination held under the direction of the United States Public Health Service. The advertisement announcing the examination stated that the position would be "beyond political interference." Political interference took the form of assessments for campaign purposes. The entire technical staff of the Savannah laboratory offered resignations in August, 1921, rather than submit to such assessments, and Dr. Bassett was at that time induced to remain and attempt to reorganize the department.

Illinois

Very satisfactory progress was made at a conference held in Chicago on August 1 of more than 100 representative Illinois milk producers, milk dealers and public-health officials in about equal numbers. Those present unanimously adopted a motion favoring a state law that would guarantee perfectly safe milk supplies for municipalities. They also accepted, with slight alterations, an ordinance drafted and presented by the State Department of Public Health as a model ordinance for adoption generally by municipalities. This ordinance was drawn up with the idea of especially stimulating pasteurization. As a means toward bringing about practical results from the conference the permanent chairman, Dr. W. A. Evans, of Chicago, was authorized to appoint three committees. The duty of one will be to edit and publish the minutes of the meeting; of another, to promote the adoption of the ordinance by municipalities; of the third, to render in the course of one or two years a report on practical legislative measures. The International Milk Dealers' Association was represented by its secretary, as well as by a number of individuals from local firms. The director of the State Department of Public Health represented that organization, while city health officers from all over the state were present. Producers were represented by individuals of recognized standing.

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Announcement has been made that the United States Bureau of the Census will make a test in Illinois during September and October of this year to determine how completely births are being reported. In anticipation of the test the State Director of Public Health has carried out a vigorous campaign in behalf of prompt and complete returns. Every practicing physician in the state whose correct name and address was

obtainable has received a letter urging him to report at once all unregistered births that have occurred in his practice, and to be especially prompt with current and future reports. County medical societies have also been solicited, with very gratifying results, for active coöperation in this connection. A few delinquent physicians have been prosecuted. As a result of these activities birth registration has increased about 10 per cent during the past twelve months, and it is felt that this, coupled with renewed coöperative efforts on the part of physicians, will indicate a registration sufficiently complete to make Illinois eligible for the United States Registration Area.

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On August 2 some thirty-odd public-health officials, including the director of the State Department of Public Health, the health commissioner of Chicago and a number of local health officers, met in quarters provided by the Pageant of Progress in Chicago, to discuss diphtheria control measures. Under the chairmanship of Dr. Herman N. Bundesen the deliberation contered particularly around the use of toxin-antitoxin as an immunizing agent, and as to whether or not a state-wide campaign in favor of general vaccination among children of preschool age against diphtheria would be advisable. No definite conclusions were reached but the State Department of Public Health has decided to initiate a campaign for immunizing young children against diphtheria without reference to the Schick test.

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Plans have been virtually completed by the State Department of Public Health for placing a district health superintendent on the program of every teachers' institute scheduled to be held in the state during the remainder of 1922. A number of such engagements have already been filled. The object is to obtain the closest possible coöperation of the school authorities in the medical examination of children. Teachers will be urged to equip themselves for giving auditory and ocular tests, and with this end in view the health superintendents will make actual demonstrations at the institutes. A definite method for making practical medical examinations with the greatest possible dispatch has already been worked out and will be presented to the teachers in pamphlet form.

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The municipality of Berwyn has completed arrangements for installing a full-time local health department. Funds for this purpose were made available through the creation of a public-health district which, under the laws of Illinois, provides for the levy of a tax that can be expended for nothing other than public-health service. A health officer and two nurses will be installed at the opening of the school year this fall on an all-time basis. The health officer, who will be in complete charge of the public-health activities in the district, will shortly be chosen from among a number of physicians who have made application. Berwyn is the second municipality in the state to create a public-health district by popular vote.

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As a result of a meeting held on August 21 between representatives of the State Department of Public Health and local officials, the municipality of Morris has taken steps to install a public sewerage system, adopt the model pasteurization ordinance and employ two full-time public health nurses for county service. Dr. William C. Sachse, local health officer, was the leading spirit in bringing about the meeting, and he has been placed in charge of an educational campaign that is being conducted in behalf of pasteurized milk.

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A series of local public-health conferences has been arranged by the State Department of Public Health for the purpose of organizing all agencies throughout the state into district units and for standardizing the medical inspection of school children in Illinois. Representatives of the Illinois Tuberculosis Association, the American Red Cross, local health agencies and school authorities have been invited to attend. The plan calls for complete organization at the first meeting and regular monthly meetings thereafter.

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Reports continue to show that the anti-malaria-mosquito campaign inaugurated at Carbondale by action of the Lions Club

and under the supervision of a sanitary engineer of the State Department of Public Health, is giving desired results. The mosquito nuisance has been eliminated and the sickness from malaria has been greatly reduced. The work of draining the swamp lands north of the city carried out by the Illinois Central Railroad at a cost of about $8,000 is nearing completion. Carbondale is the first city in Illinois to carry out systematic malaria-mosquito control work.

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Mr. M. W. Cowles, chief analyst in the laboratories of the Division of Sanitation and Engineering for six years, except for a period of military service during the World War, has severed his relations with the State Department of Public Health in order to accept a position with the Marsh Electro-Chlor Batteries of 101 Park Avenue, New York City. Mr. Cowles has been succeeded in the laboratory by Eugene S. Clark, who was promoted from the position of assistant analyst.

Indiana

The public-health cause has made rapid progress in Randolph County, Indiana, principally through the activities of Professor O. H. Greist, county superintendent, who has received little encouragement from the medical profession.

Professor Greist reports that the Health Crusade is established in every school of his county; that all the centralized schools, 23 in number, are provided with weighing and measuring scales and health weight tables. All underweight children bring milk to school, and to this cause is credited the higher percentage of advancement, physical and mental. On account of close health supervision conducted principally by the Educational Department of the county, not a single school was closed in the 1921-22 term on account of contagious and infectious diseases, and this is the first time this experience has occurred in Randolph County. There were only four deaths among the 5,846 school children in the county during the school term: one of spinal meningitis; one from heart disease; one from tuberculosis; and one from cause unknown. This school death-rate is unequaled by any other county in the state.

Medical examination was made of 4,763, over 80%, of the total number of children in the county, and the usual average percentage of defects was found. Through the county school nurse the advice to parents because of these defects has been carefully followed up.

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Maine

During 1922 there have been two clinics for Maine physicians, promoted by the Maine Public Health Association in coöperation with the Maine Medical Association and the Maine State Department of Health. The first was held at Bangor in January and the second at Lewiston August 23-24. In the latter, the medical clinic was held with Dr. Joseph G. Pratt in charge, and the surgical clinic under Dr. Daniel Fiske Jones, both of Boston. Among those speaking at the various meetings were Dr. Eugene R. Kelley of Boston, and Dr. Donald B. Armstrong of New York.

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Michigan

There were more deaths and less births during the first six months of 1922 than during the corresponding period of last year according to a report issued by the Michigan Department of Health. The report shows that 329 more persons died in the first half of this year than in 1921 and that 5,592 less births are recorded.

Despite the fact that there were more deaths this year, the death-rate for the state remains 11.8 per 1,000 population, the same figure as last year and the lowest the state has ever experienced. The increase in population, this year, accounts for the fact that the death-rate is the same.

The report, which includes sixteen causes of deaths, shows a decrease for nine causes and an increase for seven. The items which show increases are: measles, infantile paralysis, cancer, organic heart disease, bronchial pneumonia, lobar pneumonia, and railroad accidents. Those showing decreases are: typhoid fever, scarlet fever, diphtheria, tuberculosis, enteritis (under two years), childbirth, suicides, homicides and automobile accidents.

Diseases which largely affect the death-rate are heart disease, from which cause 3,223 persons died in the first half of this year; cancer with a death toll of 1,693; and tuberculosis which caused 1,419 deaths.

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Dr. William K. West of Trimountain, Mich., has been appointed consulting sur-

geon for institutional work in the upper peninsula. Dr. West is surgeon for one of the mining companies of the copper country. The surgical work at the branch prison at Marquette will come under his supervision.

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Florence A. Browne, M. D., graduate of Johns Hopkins University, was recently appointed by Commissioner R. M. Olin to head the infant unit of the newly organized clinic. Dr. Browne has been conducting children's clinics for the Detroit Department of Health.

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C. A. Wilson, M. D., head of the tuberculosis division of the clinic has resigned his position to resume private practice in Detroit. He will also accept the position of physician for the Merrill Palmer school.

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Nellie J. McComb, R. N., has been appointed clinic nurse to succeed Edna Shane, R. N., who resigned recently.

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Dr. R. M. Olin, State Commissioner of Health, has just completed a month's inspection tour of the state institutions in the upper peninsula of Michigan.

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The State Department of Health laboratory truck which has been conducting an inspection tour of Michigan summer resorts during the past three months will return before long.

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Dora Jenks, Simmons '22, and Genevieve Chambers, Cornell '22, have accepted positions as junior bacteriologists in the health department laboratory.

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Health department exhibits will appear at many county fairs this fall. Work of preparing and placing the exhibits is in charge of Marjorie Delavan, head of the bureau of education.

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Mary Kimball, secretary of the vital statistics division of the Bureau of Communicable Diseases, will leave the Department early in September. She is to be married to Bruce I. Miller, formerly in charge of Health Department publicity.

New York

In carrying out the provisions of the Davenport-Moore law, which was enacted last March, when it was decided that New York would not accept the subsidy offered by the Federal Sheppard-Towner Act, the alternative plan adopted by the New York Legislature appropriated $130,000 to enable the State Department of Health to establish a new Division of Maternity, Infancy and Child Hygiene, and to extend its efforts to protect the lives and health of mothers and babies.

The Davenport-Moore Act provided no financial subsidies to local communities, but made it possible to supply services of various types to assist them in developing their own work of safeguarding mothers and children.

A number of prominent physicians in different parts of the state have been invited to serve as consulting obstetricians and pediatricians. Thirteen of these so-called regional consultants have so far accepted appointment as representatives of the Department in their respective localities. As such, they will submit the plans of the new Division to their local medical societies and will endeavor to secure the interest and coöperation of the medical profession generally in the promotion of this work. They will also bring to the Department information about the needs and problems of their several districts, and will besides give their services in professional consultations with local physicians in cases that are unable to pay the usual fees.

Assistance to communities through the loaning of the services of nurses has been organized, and Department nurses are now at work in three counties helping to establish new maternity and child hygiene activities or reorganizing and extending work already established.

Parental consultation service by a trained obstetrician has been started in connection with the rural child hygiene consultations which have been carried on by the Department for a number of years.

The Department will soon make available the services of a nutrition worker, who will advise regarding the dietaries of children's institutions, and lecture to women's organizations and to nurses on this subject.

A number of special statistical studies of infant and maternal mortality in various parts of the state have been completed.

The general educational program in respect to maternal and child hygiene is being extended by the printing of new circulars and the revision of former departmental publications. Special lecturers have been added to the staff, and motion picture films and slides are now available and in use for public meetings generally.

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In making public a detailed report from the Division of Vital Statistics on the mortality from the principal diseases in 1921, Dr. Herman M. Biggs states that there has been an extraordinary drop in the death-rate from pulmonary tuberculosis. According to this report the death-rate from this cause last year reached the unprecedented low figure of 86.2 per 100,000 population for the state exclusive of New York City. Compared with the five-year average, 1913-17, when the rate was 118.9, it will be seen that this represents a reduction of 27.5 per cent. Moreover, the decline from the average has been steady, as indicated by rates of 111.3 in 1919 and 99.5 in 1920. The reduction of the tuberculosis death-rate in 1921, as compared with the five-year average, indicates a saving of 1,582 lives from this one disease in 1921.

Dr. O. R. Eichel, director of the Division of Vital Statistics, gives the following table showing a decline in the number of deaths for the last two years in the entire state from some important causes:

	1921.	1920.
Measles	409	1,101
Whooping Cough	755	1,007
Diphtheria	1,701	1,904
Influenza	767	5,890
Tuberculosis (all forms)	10,719	12,543
Bronchitis	1,115	1,759
Pneumonia	10,605	16,475
Diarrhea (infantile)	3,943	4,662
Maternal causes	1,382	1,424

The cancer death-rate continued its upward climb. In the entire state there were 11,068 deaths from this cause in 1921 as compared with 10,539 in 1920, 10,166 in 1919, and less than 10,000 in preceding years. In 1900 the cancer death-rate was 66.9 per 100,000, but in 1921 it was 104.6. Cerebral hemorrhage or apoplexy, and organic heart disease and endocarditis all showed slight increases in 1921 as compared with former years. To these causes were due 30,060 deaths in 1921 in the state, 23 per cent of the total number from all causes. It is important to note that many of these occurred before the old-age period, when they are preventable or their fatal effects can be postponed. Some of the chronic and organic diseases have shown a slight decline. The decrease is especially important in Bright's disease, which is one of the leading causes of death.

The death-rate from all forms of accident has declined in 1921 over 1920, but there is an increase in the mortality from automobile accidents and drowning in the state as a whole —1,581 deaths from automobile accidents and 847 from drowning, as compared with 1,439 and 726 respectively for 1920. Studies made by the Department indicate that in most cases these automobile accidents were due to carelessness, and are therefore preventable. Suicides and homicides have increased. The death-rate from syphilis was 7.3 per 100,000 population.

The general death-rate of the entire state in 1921 was 12.2 per 1,000, the lowest on record. The death-rate for the state outside of New York City reached the lowest point on record, 13.5. The birth-rate for the entire state was 22.6 per 1,000 in 1921, the highest rate since 1918, when it was 23.8. For the state outside of New York City it was 21.6, which was the highest since 1918, when it was 22.3. In 1921 there were registered for the entire state 238,696 births, of which 104,456 occurred outside of New York City.

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The work of the state sanitary supervisors during the year 1921 was a demonstration of the interest characteristic of their work. The hours of travel during 1921 were 9,970, as against 9,234 in 1920. They made 661 visits on account of communicable diseases; over 100 outbreaks were investigated; they had 641 interviews with public-health nurses; conferred with 307 town and village boards; held 1,080 miscellaneous conferences, including district conferences with health officers in all the sanitary supervisors' districts except two; attended 92 medical society meetings, 172 other meetings; gave 322 addresses; investigated 112 complaints and effected 19 consolidations of local health districts. The most pronounced increase in any class of work was the attendance at clinics. The supervisors gave as-

sistance in examining at these clinics. Reports are being tabulated of the local primary districts, and will serve as a basis upon which progress may be measured. Postgraduate courses under the direction of the sanitary supervisors were conducted in connection with the Albany Medical College, Cornell University, and Syracuse University, at which 43 students were enrolled.

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A National Health Exhibition will be held the week of October 7 in the 23rd Regiment Armory, Brooklyn, N. Y., with the coöperation of the National Health Council, the Medical Society of Kings County, the Safety Institute of America, and the Health Department of New York City. Miss Marjorie Martin, of Brooklyn, the first woman to direct a national exhibition, will be the executive director.



Miss Marjorie Martin

Forty-three national, state and local health, social, and welfare organizations will have exhibits and will be represented by officers or workers. There will be conferences among the representatives of these various groups on means of establishing coördination and coöperation throughout the country, under the auspices of the National Health Council.

Elbert H. Gary, Otto H. Kahn and other prominent men are serving on the National Health Exhibition committee.

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The Division of Vital Statistics of the State Department of Health has completed a study covering a 10-year period from 1911 to 1920 of the birth- and death-rates of a typical native American-born American community. This covered the rural portion of Cortland County, exclusive of the city of Cortland and the incorporated villages. The population is regressive, due to emigration from the farm, though there is a natural increase. The death-rate was found to be only 10.7, whereas the death-rate for the entire upstate area was 14.3. The average birth-rate was 18.2, while for the entire rural area of New York state, 1913-1917, it was 19.5. The infant mortality was 80, while that for the entire state, exclusive of New York City, 1913-1917, was 103. Though the section showed a low mortality, there were many instances of death due to preventable diseases and accidents.—*Health News Service*, June 17, 1922.

Nova Scotia

The Massachusetts-Halifax Commission is doing extensive work in the prevention of tuberculosis. Dr. T. N. Sieniewicz completed his first year as tuberculosis examiner in July. Six clinics have been held by the examiner and his associates. There are at present 744 cases under surveillance.

A public-health nurse takes notes at every tuberculosis clinic in order to see that advice or treatment is carried out in the home. Home contacts are given examinations. A visiting housekeeper, as well as a public-health nurse, makes periodical visits to the homes, and under-nourished children are enrolled in nutrition classes. During the year 4,261 visits were made by these women.

During the summer of 1921 the Anti-Tuberculosis League undertook the support of 25 under-nourished children in an open-air-camp. Most of them had been exposed to tuberculosis. The camp was a complete success.

Following the finding of the clinic, 34 cases were sent to the Kentville Sanatorium, 27 to the City Tuberculosis Hospital, and 4 elsewhere. Twenty operations for thoracentesis and 19 for pneumothorax were performed. The services of the tuberculosis examiner are at the disposal of the city practitioners. This consultation service is

operated on a basis very much like that of Bartlett's Framingham. One hundred and forty-eight persons were examined in consultation during the year.

The examiner delivered a series of 10 lectures in the course of public-health nursing, and another series of 60 lectures to the third and fourth year medical students of Dalhousie University. His services as lecturer are free to any club or society. Last year he lectured to students of the normal class of Mount St. Vincent Academy at the public-health conference in St. John, New Brunswick, and his services were loaned to that city in their Case-finding Campaign.

The City Tuberculosis Hospital was opened during this year, and the examiner was named attending tuberculosis expert and spent certain mornings there each week.

Ohio

The Cincinnati Public Health Federation has made a modest beginning toward working out a comprehensive plan for encouraging physical examinations. It believes that the education of the public along these lines can best be approached by a gradual process starting with social service agencies and gradually extending to the public. The staffs of fourteen social service organizations were examined as a beginning, bringing to light several serious conditions that had not been known to those concerned.

The Federation instituted a system of methodical physical examinations of all girls going to Girl Scout summer camps, providing physicians, nurses and the necessary laboratory work. All examinations were standardized so far as the general points to be covered were concerned. The findings resulted in the exclusion of some girls from the camp for the time, and the regulation of diet and routine of others.

During Negro Health Week special emphasis was laid on the importance of periodical physical examinations, and information was given as to where colored people could apply. Dr. Wm. H. Peters, Health Commissioner, reported that this resulted in bringing a very great number of people especially for complete physical examination.

It is now the purpose of the Federation to urge that all other social service agencies follow some such plan for their staffs. A woman physician with experience in this line has set up an office in the downtown section of Cincinnati, where she will specialize in making complete physical examinations. The Federation will coöperate with her in helping her to make the experiment a success, in view of the fact that she is charging a very reasonable fee and is particularly competent.

After the idea has been successfully carried out by the social service organizations in the city, the Federation will launch a campaign to interest the public generally. Information will be published in pamphlets telling how to protect against disease and ill-health, and advocating a periodical physical stock taking.

Oklahoma

R. H. Hixson has recently become secretary of the Oklahoma Public Health Association, succeeding Jules Schevitz, who died March 22. Mr. Hixson comes from the Florida Public Health Association, of which he was general secretary.

Philippine Islands

The Committee on Leprosy Investigation in Manila and the Committee of Treatment of the Culion Leper Colony, having proved the curability of leprosy within a relatively short time, and taking into account the resolution approved by the Council of Hygiene in its regular session of October 13, 1921, which was concurred in unanimously by the members of the Leprosy Investigation Committee, the director of the Philippine Health Service, by virtue of the authority conferred on him by existing legislation, has issued the following orders, revoking previous regulations for leprosy:

1. All lepers who, after medical treatment, are declared negative during three consecutive clinical and bacteriological examinations during the period of one and one-half. month, shall be placed in quarantine.

2. The quarantine shall last for at least six months from the date they were declared negative for the first time.

3. Patients under quarantine, after completing the prescribed period of six months, in case no recurrence of the lesions were observed or when the bacteriological examination has not resulted positive during such periods as is hereby fixed above, shall be paroled on condition that they shall report

to the Committee on Leprosy Treatment in Manila weekly for the continuation of the treatment or the necessary examination during a period of 18 months; provided, however, that none of these patients shall receive any treatment for leprosy from any private physician.

4. The presentation of these negatives may, in the discretion of the Committee, be excused during a period of two weeks once every three months.

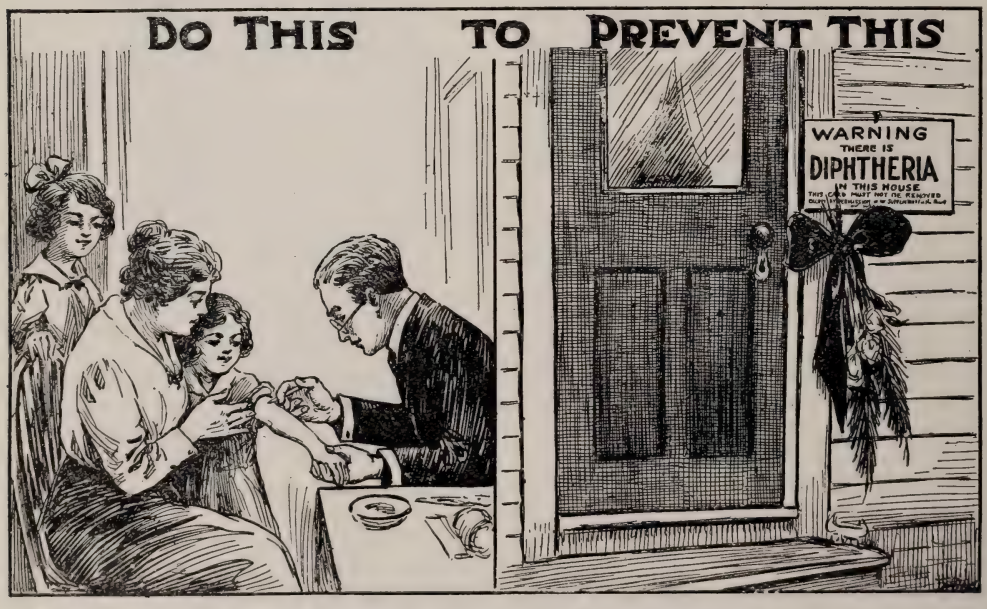
5. Those declared as negative who prefer to remain in the hospital, shall be permitted to do so until the completion of the period of 18 months. These shall be permitted, however, to absent themselves from the hospital once in a while under conditions prescribed by the chief of the hospital.

6. After two years' freedom, in accordance with previous regulations, the condition to liberty shall consist solely of reporting every two months for a period of one year to the sanitary official of the locality in which the interested party may hereafter reside.

7. All negative lepers who are enjoying conditional freedom shall notify the director of health of their address and changes of residence.

8. Each negative leper who is accorded the privileges specified in the present regulation, shall be provided with a certificate to be kept by him, showing the necessary data for his personal identification, his address, continuation of treatment, the dates he has presented himself to the Committee as well as the result of the clinical or bacteriological examination or both.

9. In accordance with the above rule, the San Lazaro Hospital, the Culion Leper Colony and the Central Office in Manila shall keep a register of all paroled patients in which shall be shown the necessary data for the identification of each individual so paroled, his address, the dates on which he presented himself to the Committee, and the result of the clinical or bacteriological examination of each.—*Official Gazette,* April 6, 1922.



Protection Against Diphtheria

The Providence (R. I.) Health Department, Dr. C. V. Chapin, superintendent, is using the poster reproduced above, drawn by a local newspaper artist, as part of its propaganda for diphtheria control. Instructions addressed to parents are printed on the back of the poster. Four clinics opened in schools in different sections of the city, where children can be immunized against diphtheria. Results have been very satisfactory.

Virginia

Arrangements have been made for the consolidation of the health departments of Charlottesville and Albemarle County, with Dr. William S. Keister as health officer in charge. Dr. Keister was formerly director of the County Health Department.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by E. R. HAYHURST, M.D.

Tuberculosis is Increasing Among Adolescent Girls.—Despite the very pronounced decline in the mortality from tuberculosis which has taken place during the last decade, the disease is actually increasing among girls between the ages of fifteen and twenty years. This is shown clearly by figures compiled by the Metropolitan Life Insurance Company which relate to the ten-year period 1911 to 1920. Adolescent girls constitute the only group in which the tuberculosis death-rate has not declined.

The Company's compilation shows that during the six-year period 1911 to 1916, the average annual death-rate from tuberculosis among white girls, aged 15 to 19 years and insured in its industrial department was 144.5 per 100,000; by 1919, this rate had increased slightly (to 145.8), and in 1920 it rose further to 151.5. These increases, it is true, are small; ordinarily, they would not be commented upon. They become very important and significant, however, by virtue of the strong contrast which they present to the trend of tuberculosis mortality among both females and males of other age groups.

During the same time that the tuberculosis death-rate of adolescent white girls was increasing 5 per cent, the mortality among adolescent white boys was decreasing 25 per cent.

As early as March, 1921, attention was called in this Bulletin to the increase in tuberculosis among young girls as the one anomaly in a situation where favorable developments were in evidence for every other age group. Since that time the attention of students of the tuberculosis problem has been directed more or less toward this phase of the situation. As yet, no satisfactory explanation has been offered as to the causes which have brought about the comparatively high tuberculosis death-rate among adolescent females. Further research into this important subject is called for, and it is suggested that more careful attention be given to the phyiological aspects of the question. It would be well to find out whether the increasing number of young girls who have entered industry in recent years at these adolescent ages (when physiological changes are more pronounced among them than among boys) is having any effect in bringing about the increased death-rate.—Metropolitan Life Insurance Company, *Statistical Bulletin,* Vol. II, No. 12, December, 1921, pp. 3-4.

Franklin, Saver of Daylight.—Daylight saving is commonly regarded as a British device, because it was proposed and practiced in that country some years before its trial here. But now it appears that it was a "Yankee notion" of ancient date, having been devised by no less an authority than Benjamin Franklin when he was the American Minister to France. A writer in *L'Intransigeant* recalls that, on April 26, 1784, there appeared in *Le Journal de Paris* a letter from the great American philosopher, in which he set forth his conception of the daylight saving idea.

He related that one night, after tarrying with friends until a late hour, he went home at 3 o'clock in the morning and retired, hoping to have a long sleep. But very soon he was awakened by the noise made by his neighbors in the apartment overhead.

"I was astonished," he said, "to see my room lighted, and thought first that a dozen lamps had been lighted, but upon rubbing my eyes I realized that my servant had forgotten to close the shutters, and that the sun was rising. I looked at my watches, which were go-

ing well, and saw that it was only 6 o'clock. As I found it extremely extraordinary that the sun rose so early I consulted my almanac and read there that the sun would continue to rise earlier every day until the end of June.

"This suggested to me several serious reflections. I considered that if it had not been for the accident that shortened my sleep I would have slept six or seven hours longer, and that many persons were every day doing the same. Let us suppose there are in Paris 100,000 families, each of which consumes half a pound of wax candles an hour; this consumption would go on during six months, with a daily mean of seven hours, which, for the 100,000 families of Paris alone and the 128,000,000 hours, represents 64,050,000 pounds of wax, at the average price of 30 sous a pound, an annual expense of 9,675,000 Tournois livres.

"What a discovery and what a saving," cried Franklin, "if the Parisians could be persuaded to live in summer only in daylight. But how to convince them?"

And Franklin proposed three means:

"First—To put a tax of one louis on every window that had shutters preventing the light from entering the rooms as soon as the sun was on the horizon.

"Second—To establish a law to diminish the consumption of wax and candles; to put guards in the stores of wax chandlers and not permit a family to purchase more than one pound a week.

"Third—Have all the bells of the churches ring at sunrise, and, if need be, have cannons fired in every street to open the eyes of the lazy people to their interest."—*The General Chemical Bulletin,* Vol. VIII, No. 10, Aug., 1922, p. 321.

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Dermatosis Following the Use of Cutting Oils and Lubricating Compounds.—In this report attention has been particularly directed toward the practical method of preventing the dermatosis, but it is realized that only a minimum reduction in the number of cases is effected by merely recommending preventives to the workmen without providing adequate sanitary arrangements and employing responsible supervision.

The weight of the evidence collected in this investigation incriminates oil and lubricating compounds of all types carrying extraneous matter in suspension as the primary cause in producing the initial dermatosis by mechanical obstruction of the sebaceous orifices, the underlying or basic cause being a deficiency of the natural oiliness of the skin. Infecting organisms, which usually inhabit the body surface, but which may be carried by cutting liquids, frequently find ingress to the skin through the primary dermatic lesions by reason of the sufferer's scratching the affected surface or by reason of other irritation, and thereby produce a secondary infection of the dermatosis as a complication.

In other cases the abrasions produced by particles of the metal become infected and complicate the dermatosis. The condition so arising is not, however, allied to the primary dermatosis, but is similar to conditions which would be classified under the head of abrasions and infections, such as are commonly found wherever bacteria are present.

Prevention depends, first, upon thorough cleanliness, and second, upon the application of lanolin or lanolin and castor oil to the skin at the beginning of the work period.

Cure is accomplished by rest of the affected parts and by constant use of the preventive measures.

A very complete bibliography is appended. —William J. McConnell, *U. S. Public Health Reports,* July 21, 1922, Vol. 37, No. 39, pp. 1773-1794.

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Lead Poisoning in the Pottery Trades.—This Bulletin of 223 pages containing tables, charts, and many illustrations is by all means the most complete statement of this subject yet published, and represents a great amount of intensive work done by the Public Health Service. It is also valuable in that it makes continual comparisons with similar investigations made by Dr. Hamilton in 1910-11 and Dr. Hayhurst in 1914 (the latter in Ohio only). The report points out that the reasons for making the investigation were alleged discriminations, particularly in the matter of insurance protection, against potters due to previous surveys, and that the Brotherhood of Operative Potters requested the investigation. There is discussed the pottery industry and its importance, a statement that 92 representative potters of New Jersey, Ohio, Pennsylvania and West Virginia are included, a description of the methods of technique of the survey, followed by an analysis of the types of pottery workers especially exposed to lead poison, a description of the plant pro-

cesses in which they work, a statement regarding plant hygiene, and plant management in relation to welfare of workers. One part is devoted to lead as a poisonous substance, summarizing the best information and followed by a statement of the cases of lead poisoning found in this survey. Causative factors in plumbism, as the disease exists in pottery workers, is carefully analyzed in Part IV. The means and methods of reducing the lead hazard make up Part V, and include the following sub-headings: individual means and methods (food, clothing, work-room practices), plant means and methods (bathing, drinking facilities, work-room practices), plant hygiene (illumination, ventilation, and dust prevention), buildings, processes, management, and modern improvements, calculated to lessen the lead hazard (glazes with low lead content, substitutes for lead, fritted lead glazes, continuous kilns, automatic machinery, etc.). Appendices are devoted to: (a) the Clague-Oliver treatment, the pros and cons of which are discussed with the following conclusions: "One definite result, though, follows the use of the treatment. It does tend to encourage pottery workers to exercise more care in personal hygiene, cleanliness of hands and person, the use of laxatives when they are needed, the keeping of better hours, and like practices, which in themselves help toward prevention and cure. As an adjunct to other treatment, the method is of probable value simply for its symptomatic effects." (b) Chemical examination of lead glazes. (c) Emanations. (d) Hygienic conditions found in the plant. (e) Dust counts.

Whereas Dr. Hamilton in 68 plants in 1911-12 found a total of 501 cases of lead poisoning, with a rate of 7.2 to 13.2 in the number exposed, and Hayhurst in 47 plants in 1914 found 109 cases of lead poisoning or a rate of 4.2 of the number exposed, the Public Health Service in 1919-20 in 92 plants found 270 cases of lead poisoning, or a rate of 15.0 for those exposed. Of the same 109 cases which Hayhurst found suffering from lead poisoning, the report says it is interesting to note that our investigators found 40 out of 50 of the 109 cases still suffering from lead poisoning. Of the remaining 59 cases, our men procured information for about 24. Five of these had died of some unstated cause, 2 were employed in a pottery where lead is said not to be used, and the remainder were found to be insurance agents, farmers, teamsters, and foundrymen. Newman, McConnell, Spencer, & Phillips, *Public Health Bulletin, No. 116,* U. S. P. H. S., May, 1921.

✣

War on Woolsorters' Disease.—The fear of anthrax which has so long overshadowed the woolen industry bids fair soon to be eradicated. For many years the Factory Department of the Home Office has been endeavoring to minimize the risk by removing dust in the opening processes and suspicious blood-stained material. These measures have not proved sufficiently efficacious. Finally, following upon the advice of a departmental committee appointed to consider the question, the decision was arrived at to construct a disinfecting station at Liverpool, where all East Indian goat hair and Egyptian wool—which have been found to be particularly liable to be infected—must be compulsorily disinfected on import before sale. The materials at the station are subjected to formalin by a process designed by Mr. E. Duckering, who is now in charge of the station. After a year's experience the Home Office is now able to report that the process is a practical success. Wool, so far from being damaged by the treatment, is found to command a higher price. The charge for disinfection, which is applicable to other materials than wool, such as hair and bristles, is 1½d per pound. About half the cases of human anthrax in Great Britain originate from imported wool and hair, so that in the immediate future mortality from this cause should be reduced fifty per cent.—*Lancet Editorial,* Aug. 6, 1922, No. 5162, Vol. CCIII, p. 286.

✣

Certain Aspects of the Problem of Zinc Toxicity.—The puzzling nature of brass or zinc chills has induced the investigator to study the problem from the point of view of the metallurgist. The author discusses brass founders' ague, the thermo-physics of zinc oxide formation, the vapor tension of zinc and certain other methods as well as of brasses, the manufacture of brass, and the composition of brass fumes. He agrees with Gillett that "it is unlikely that metallic zinc reaches the lung unoxidized," which in the author's opinion is putting the matter conservatively. He next makes a review of the literature on the toxicity of zinc oxide (historical review) which constitutes a very complete di-

gest. His explanation of the phenomenon of zinc chills is as follows: Dispersion and absence of adsorbed moisture would appear, then, to be the main points of difference between the zinc oxide which produces the ague and that which does not. Men working near the furnaces where the oxide comes off in the freshly burned state are subject to the ague; those in industries where this same oxide is handled and where zinc oxide is also inhaled do not complain of the ague. In both cases it is chemically zinc oxide and virtually pure. In the freshly burned state it is made up of dispersed particles. In the other state it is largely flocculated, undoubtedly lower in temperature, and contains some adsorbed moisture. Considered in this light the toxicity of zinc oxide is of interest and importance to the manufacturer, the clinician, and the industrial hygienist alike. Considered simply as a malady which can be avoided by adequate ventilation, the brass founders' ague appears to be of minor importance. In the latter case it is very properly placed under the domain of prevention medicine, and its occurence is ascribed to carelessness. In the former classification it can be regarded as a convenient link between fumes and dusts, and as such it offers an interesting and important problem on the effects of humidity, temperature, particle size, and flocculation on the collection of dust particles. This phase of the problem will form the subject of a future paper.—Philip Drinker, *Jour. of Industrial Hygiene,* Vol. IV, No. 4, Aug. 1922, pp. 177-197.

✣

Studies in Experimental Silicosis.—Mavrogordato finds that while the solubility and chemical activity of dust are of great importance, but little attaches to hardness or sharpness; chemically inert dusts are not considered dangerous. Hence it is that conditions of work in gold-mines which favor the survival of pathogenic organisms, such as darkness, temperature, and humidity, are of importance. Some light is thrown on the well-known absence of dust-phthisis among coal-miners, even though the dust of coal-mines contains a fair proportion of silica; for although, when once silica is fixed in the lung tissues, coal-dust exerts no eliminative effect —if anything the influence is in the opposite direction—yet a prior or even simultaneous exposure to coal-dust appears to set up a condition in the lung which is inimical to the fixation of silica. This monograph contains 118 excellent illustrations.—*Lancet,* Vol. CCIII, No. 5161, July 29, 1922, p. 238.

✣

Health, the Business Man's Chief Asset.—This is an abstract of an address delivered to the London Rotary Club. Hitherto we have been prone to regard health merely as the negation or antitheses of disease. But health is a definite entity—a positive state that can be preserved and maintained. When we hear the statement that health can be purchased, we are to understand that the knowledge of how to maintain the chemical balance in the human body is available if we will but apply it. The old proverb that "a man is as old as his arteries," should be brought up to date, and expressed as "a man's arteries are as old as he cares to make them."

In regard to the health of the business man, carrying heavy responsibilities and organizing large industries, there are few more tragic experiences in life, than when suddenly pulled up by the refusal of the human machine to function correctly, he is told by the doctor that there must be three or six months cessation from all work, and that he can never again carry on at the old pace and live. The writer then takes up some of the common warnings: (1) insomnia, (2) dyspepsia, (3) shortness of breath, (4) individual health limitations. The answer is periodic medical examinations. To recognize your medical man as your advisor in health as well as your physician in disease, is a commercial proposition well worthy of consideration. He next cites results of the experience by the Metropolitan Life Insurance Company in annual stock taking of health (noticed in these columns before), in which the Company, on a particular group of policy holders, had its principal returned and made a gain of about 200 per cent on its investment during a period of approximately five years.

The business man's concern in the health of his employees has three aspects: (a) the legislative or compulsory aspect which considers workmen's compensation acts, (b) voluntary effort as "welfare schemes," and (3) the health of the worker—an important factor in production. "Slacking" is not infrequently due to defective physical health. Systematic and scientific medical examinations are pleaded as the economic doctrine of making better use of the knowledge we now possess.—Sir Napier Burnett, *Lancet,* Vol. CCIII, No. 5164, Aug. 19, 1922, pp. 423-424.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Complement Fixation in Gonorrhea.—In the author's opinion, the complement-fixation test in gonorrhea does not seem to have received the recognition it deserves. Its value in diagnosis is at least as great as that of the Wassermann reaction in syphilis. The reaction becomes positive earlier in the disease than does the Wassermann in syphilis, and it does not tend to disappear as a result of treatment until some time after the disease is cured. A series of 1,000 tests is discussed.—T. E. Osmond, *Lancet* (London), June 10, 1922; *Jour. A. M. A.*, 79, 331 (1922).

✣

Determination of Uric Acid in Urine.—The reagent employed by the authors is arsenic phosphoric tungstic acid reagent and is prepared as follows: 100 gm. of pure sodium tungstate are placed in a liter pyrex flask and dissolved in about 600 c.c. of water; 50 gm. of pure arsenic acid are now added, followed by 25 c.c. of 85 per cent phosphoric acid and 20 c.c. of concentrated hydrochloric acid. The mixture is boiled for about 20 minutes, cooled, and diluted to 1 liter. The reagent appears to keep indefinitely. A 5 per cent solution of sodium cyanide, which should be prepared fresh once in about two months, is also used, and a standard solution of uric acid, acidified with hydrochloric acid, containing 0.2 mg. of uric acid in 10 c.c.—S. R. Benedict and E. Franke, *Jour Biol. Chem.*, 52, 387 (1922); *Jour. A. M. A.*, 79, 407 (1922).

✣

Hydrogen-Ion Concentration of Feces.—The normal feces reaction of apparently healthy men on mixed diets lies between p_H 7.0 and 7.5 though temporary variations beyond this range may occur without giving rise to any unusual sensations on the part of the subject. The effects of some common laxatives on the fecal reaction were studied. The usual result is the production of an acid stool. The administration of the alkali, magnesium oxide, does not differ from the others in this respect, but the fecal material passed after the cessation of the laxative action is unusually alkaline. The physiologic factor is the predominant one in influencing fecal reaction, no result being noticeable from the introduction of acidophilic bacteria into the intestine. The intestine apparently exerts a regulatory influence which prevents the development of acidity by micro-organisms. There is evidence that alkalinity in feces is also due to physiologic rather than biologic causes.—C. S. Robinson, *Jour. Biol. Chem.* 52, 407 (1922); *Jour. A. M. A.* 79, 407 (1922).

✣

Westinghouse Tumbler Water Heater Used as Sterilizing Device.—This apparatus has been devised by Dr. R. R. Jones of the Bell Telephone Company in Pittsburgh. The heater is inserted in a two-quart pyrex bean pot, and when the water is hot, the instruments to be sterilized are immersed in it. The device has the advantage of being very economical as well as easy to clean and convenient to use. Since the jar is transparent it is always possible to see just what is in the sterilizer.—Anon.

✣

Sugar in Blood and Spinal Fluid in Epidemic Encephalitis.—The authors found that in epidemic encephalitis the sugar content of the blood and spinal fluid is increased, but only after a certain level of blood sugar has been reached. At present hyperglycorrhachia can be used chiefly to differentiate epidemic encephalitis from the two conditions with which it is most likely to be confused—tuberculous meningitis and early poliomyelitis.—W. Thalhimer and H. Updegraff, *Arch. Neur. Psych.* 8, 15 (1922); *Jour. A. M. A.* 79, 498 (1922).

✣

Cerebrospinal Fluid in Multiple Sclerosis.—The spinal fluid findings in 38 cases of multiple sclerosis, together with certain

blood examinations in a number of these are given. There is no single fluid test of paramount value in the diagnosis of multiple sclerosis. However, correlation of all tests ordinarily performed on the spinal fluid indicates that it is seldom entirely normal, and that in 50 per cent of the cases of this series findings unusual in other diseases were obtained. This group of findings, which the authors consider important, is as follows: fluid of normal appearance, obtained under normal or low pressure as registered by the manometer, showing a slight increase in cells (lymphocytes and arachnoid mononuclears); total protein normal or only slightly increased; globulin a slight trace or absent, and a paretic colloidal gold curve with a negative Wassermann reaction. Correlation with the clinical picture suggests that this type of fluid indicates a progressive stage of multiple sclerosis. Conversely, normal or nearly normal fluids were found primarily in patients in whom no clinical progress had recently been apparent. Results of certain chemical studies designed to show disorders of metabolism in this disease, performed on blood and spinal fluid, were normal.—J. B. Ayer and H. E. Foster, *Arch. Neur. Psych.* 8, 31 (1922); *Jour. A. M. A.* 79, 498 (1922).

✠

Formol-Gel Reaction in Leprosy.—One hundred and sixteen serums from cases of leprosy not specially selected—nodular, anesthetic and mixed cases were included indiscriminately—were tested by the authors by the formol-gel method of Gaté and Papacosta. Every case gave a definitely positive reaction. The test was carried out in every instance with inactivated serum only. From these observations it appears that the Gaté-Papacosta reaction is likely to prove a valuable serologic test in the diagnosis of leprosy.—D. A. Turkhud and C. R. Avari, *Ind. Jour. Med. Res.*, Calcutta, 9,850 (1922); *Jour. A. M. A.* 79, 505 (1922).

✠

Agglutinating Serum for Tubercle Bacillus.—By injecting into rabbits a non-virulent strain of living human tubercle bacilli in increasing doses at five-day intervals, the author secured a high titer serum. After the sixth dose, the titer of the serum against the homologous strain was 1 to 1600. Of eleven strains of human tubercle bacilli tested against the serum seven reacted to a 1 to 200 dilution, five to a 1 to 1600 dilution. —J. Smith, *Lancet (London)*, July 1, 1922; *Jour. A. M. A.* 79, 505 (1922).

✠

Cultivation of Tubercle Bacilli.—The authors report almost invariable success with the Dorset egg culture medium, shaking up the yolk and white together, and adding one-fifth part of water, and slanting the test tube in the incubator till it hardens. The usual preliminary treatment with an alkaline caustic kills off the accompanying bacteria. They close the tube with paraffin and stain a smear from the culture the fourth day, and every two or three days thereafter.—Meyer and Fitschen, *Med. Klinik (Berlin)* 18, 730 (1922); *Jour. A. M. A.* 79, 510 (1922).

✠

Immunization of Guinea-Pigs Against Typhus.—The authors report their successful search for a method by which they are able by regulation of the dosage of virus, applied to guinea-pigs, to produce an "unapparent" infection which, however, results in active immunity. They think that the method will probably be applicable to man, for Nicolle has already shown that the immune serum of guinea-pigs has a prophylactic effect on man. On the other hand, it can doubtless be assumed that convalescents' serum is effective. It is also fully established that guinea-pig virus will infect man. In both of their virus strains, the infective doses which, following an afebrile course of the infection, produced a definite active immunity, lay between 0.001 and 0.0001 gm. of brain substance. The smaller amount would infect most of the controls but would not produce an active immunity in the passively immunized animals. (Weil's name is familiar in the Weil-Felix test for typhus. His untimely death from laboratory infection was recorded recently.)—*Wien. klin. Woch. schrift*, 35, 458 (1922); *Jour. A. M. A.* 79, 511 (1922).

✠

Speed of Sedimentation of Blood Corpuscles.—The author emphasizes again the diagnostic value of the determination of the suspension stability of blood corpuscles in gynecologic practice. If the sedimentation time is accelerated; that is, if it is less than 30 minutes, acute inflammatory processes

affecting the genital organs may be suspected. The changes in the sedimentation velocity will often furnish desired information when changes in the temperature occur. In the differential diagnosis between recently disturbed ectopic pregnancy and acute adnexal and peritoneal affections, slow sedimentation points with a high degree of probability to tubal pregnancy. Sedimentation serves also as an excellent indicator as to the time for operative intervention in fixed retroflexion, chronic adnexal tumors and similar affections. If sedimentation occurs in less than one hour, virulent infective agents may still be present, and operative measures should be delayed; if sedimentation requires two hours or more, it is safe to go ahead with a laparotomy; latent infection need no longer be feared. The buffy coat or crusta phlogistica of the physicians of earlier centuries has again come into honor through Fahraeus' revival of a well known diagnostic principle.—G. Linzenmeier, *Zentr. bl. Gynaek. (Leipzig)* 46, 535 (1922); *Jour. A. M. A.* 79, 511 (1922).

✠

Etiology of Scarlet Fever.—The organism previously reported from the laboratories of the Detroit Health Department as found only in scarlet fever shows several varieties, one of which is, under certain conditions, somewhat similar in its morphology to B. diphtheria and which may be a toxin producer. Diphtheria antitoxin protects against this culture, providing the antitoxin is given some time before the injection of the culture. A preliminary report is made of results obtained by culturing patients sick with scarlet fever, which the author believes justifies the tentative conclusion that this variable organism is the cause of scarlet fever.—R. W. Pryer, *Jour. Lab. Clin. Med.* 7.592 (1922).

✠

Rouleaux Formation of Red Cells in Various Types of Disease.—In the study of rouleaux formation in disease, emphasis is placed upon the necessity of a technic which permits quantitative measurements by varying the dilution of the serum and the cellular suspensions. In 7 out of 17 cases of Hodgkin's disease rouleaux formation was completely lacking under conditions in which normal red cells formed intense rouleaux. In all the cases of leukemia examined, rouleaux formation was lacking to a greater or lesser degree. It was thought that this deficiency of the red cells from cases of Hodgkin's disease and leukemia might be due to the anemia which occurs in these diseases and that the change is not due to the anemia per se, is shown by the fact that the red cells of pernicious anemia formed rouleaux well. Normal rouleaux formation always occurred in cases of cancer and sarcoma and in the cases of infectious disease that were tested. These results were clear cut. On the contrary the results obtained in cases of leukemia and Hodgkin's disease were variable. It would seem that if there is any valuable information to be gained by testing for rouleaux formation, some finer development or adjustment of technic than that used must be established.—D. B. Swift, *Jour. Lab. Clin. Med.* 7, 614 (1922).

✠

Weil-Felix Reaction for Typhus Fever.—The routine technic of the test as carried out at the New York quarantine station is given in detail. The reaction is of great value to confirm or eliminate the diagnosis of typhus fever. For the purpose of maritime quarantine, the reaction described is reliable, and greatly expedites shipping when there is a question of typhus fever. At the New York quarantine station a positive Weil-Felix reaction is regarded as diagnostic of typhus fever. After the first few days (3 to 7) of the illness, a negative reaction is accepted as the strongest evidence against this disease.—John E. Holt-Harris and S. B. Grubbs, *Publ. Health Rep.* July 14, 1922.

✠

The Relation of Bacteria to the Mucous Membranes.—No bacteria of any sort entering the mouth can persist free in the secretions for more than a few hours. More permanent presence implies a biological adjustment to growth on the mucous membrane whereby the organisms become localized at the site of growth. Such adaptive power is relatively constant for large groups of bacteria in relation to the general population, but varies widely in the case of individual organism and individual host.—A. L. Bloomfield, *Bull. Johns Hopkins Hosp.* 33, 252 (1922).

✠

Blood in Pernicious Anemia.—Capillary red blood cell counts on patients with per-

nicious anemia were on the average 17.6 per cent higher than similar counts on venous bloods at the same time. An increased number of macrocytes was observed in capillary blood as compared with venous blood. This striking difference is believed to be due to a tendency for the larger red blood cells to lag in the narrow capillary bed when the rate of flow of blood is slow and the pulse is lost.—W. W. Duke and D. D. Stofer, *Arch. Int. Med.* 30, 94 (1922).

✣

The Pyramidon Test for Blood.—The author confirms the discovery of Thévenon and Rolland (Presse méd., 1918) and the researches of subsequent writers. Pyramidon gives a much more delicate test for blood than either guaiac or benzidine. The solutions required are:

1 Pyramidon 5, alcohol (95%) 100.
2 Glacial acetic acid 25, distilled water to 50.
3 Hydrogen peroxide 3 per cent.

The original method was as follows:

To 2 to 3 c.c. of the fluid to be examined were added 6 to 8 drops of the acetic acid solution, 2 c.c. of pyramidon solution, and 6 or 8 drops of 3 per cent hydrogen peroxide. The appearance of a lilac color is positive for blood. The author has increased the acetic acid solution to 16 drops and the peroxide solution to 12 drops, and claims that this gives a more rapid and distinct coloration. The author finds that while the guaiac test is only positive in a 1 to 1000 dilution of blood, pyramidon shows blood in 1 to 21.000 dilution. The usual technic for extraction of occult blood from stomach content and feces was employed.—A. Fortwaengler, *Zentr. bl. inn. Med.*, May 13, 1922; *Brit. Med. Jour.* June 10, 1922.

✣

Serologic Studies of the Exudate of Syphilitic Chancres.—In the exudate from chancres which are clinically syphilitic there is a substance that acts as amboceptor in the Wassermann test. There has been found also in the exudate of the same chancres another substance that acts as antigen in the Wassermann test. In the exudate from chancres which are clinically negative with no spirochetes, no antigen or amboceptor has been found. While only one mixed chancre was studied, both antigen and amboceptor were found besides spirochetes. The substance that acts as amboceptor and the substance that acts as antigen were found together when their presence was demonstrated. No case was positive for spirochetes and negative for antigen and amboceptor. Exudates from chancres that were clinically positive but in which no spirochetes were found contained both antigen and amboceptor. The amount of complement in these exudates is not sufficient to change the positive or negative reaction. The total number of experiments was nineteen.—Cesar Fuentes, *Arch. Derm. Syph.* 6, 136 (1922).

✣

Elimination of Arsenic in Urine following Arsphenamin Treatment. — Only a small amount of the arsenic derived from arsphenamin is eliminated by patients through urine, 13.5 per cent being the highest amount in 14 days. The largest amount of arsenic is eliminated in the first 3 days, after that uniformly small amounts are found in the urine. The elimination is larger after the second and third doses are administered than after the first. The elimination of only small quantities of arsenic in the urine may be explained by the fact that a considerable quantity is eliminated through the feces and some is temporarily retained by the liver, kidneys, spleen, intestines and other parts of the body.—Ch. Weiss and G. W. Raigiss, *Arch. Int. Med.*, 30, 85 (1922).

✣

Standardization and Preservation of Complement Serum.—The serums from different guinea-pigs differ greatly in fixability and in hemolytic power. In order to obtain fairly uniform complement serum, the serums must be selected, the good serums being used and the poor serums rejected. Breeding only guinea-pigs with good complement greatly improved the collection of guinea-pigs for this purpose in three years. Any raw vegetables, such as potatoes, cabbage or carrots, prevent scurvy and are suitable winter feed for complement guinea-pigs. A mixture of raw vegetables gives the best results. The fixability of guinea-pig complement was much better in winter than in summer, which may be due to the large quantity of grass feed in summer. Frozen complement serum kept below zero Fahrenheit in the cold storage remained active for eight weeks. Salted complement serum kept

at approximately 1 c.c. remained active for more than four weeks—E. H. Ruediger, *Jour. A. M. A.* 79, 552 (1922).

✣

Sedimentation of Red Corpuscles in the Prognosis of Chronic Pulmonary Tuberculosis.—The suspension stability of the red corpuscles promises to become an important aid in determining the activity of a tuberculous process, furnishing a more exact and more reliable indicator in regard to the course of the infection in a given case than observation of the temperature curve.—W. Dreyfus and P. Hecht, *Muench. med. Woch. sch.* 69, 597 (1922); *Jour. A. M. A.* 79, 597 (1922).

CONVENTIONS, CONFERENCES AND MEETINGS

This calendar is published through the coöperation of the National Health Council, 370 Seventh Avenue, New York City. The Council will be glad to answer promptly any written or telegraphic inquiries regarding meeting dates in order to avoid conflicts.

September 17-21, National Conference of Catholic Charities, Catholic University, Washington, D. C.

September 19-21, American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Albany, N. Y.

September 19-22, American Electro-Therapeutic Association, New York.

September 19-23, American Academy of Ophthalmology and Oto-Laryngology, Minneapolis.

September 24-29, American Hospital Association, Million Dollar Pier, Atlantic City, N. J.

September 28-30, Northwestern Tuberculosis Conference, Reno, Nevada.

September 28-30, New England Tuberculosis Conference, Poland Springs, Me.

October 3-4, Oklahoma Public Health Conference, Oklahoma City.

October 9-11, Mississippi Valley Tuberculosis Conference, Milwaukee, Wis.

October 9-11, American Red Cross, Washington, D. C.

October 9-12, Recreation Committee, Atlantic City, N. J.

October 9-13, American Society for Municipal Improvements, Cleveland, Ohio.

October 12-14, Thirteenth Annual Meeting American Child Hygiene Association, Washington, D. C.

October 12-14, Association of Military Surgeons of the U. S., Washington, D. C.

October 12-18, American Prison Association, Detroit, Mich.

October 16, National Health Council, Cleveland, Ohio.

October 16-19, Fifty-first Annual Meeting, A. P. H. A., Hotel Statler, Cleveland, Ohio.

October 16-19, Kentucky State Medical Association, Paducah.

October 16-18, American Dietitians Association, Washington.

October 18-20, American Association Railway Surgeons, Chicago.

October 19-20, American Social Hygiene Association, Cleveland, O.

October 23-27, American College of Surgeons.

November 1-4, National Association Practical Refrigerating Engineers, St. Louis, Mo.

November 13-16, Southern Medical Association, Chattanooga, Tenn.

November 14-16, New York State Conference of Charities and Corrections, Albany, N. Y.

December 1-2, Forty-eighth Session New Jersey Sanitary Association, Lakewood, N. J.

FOREIGN MEETINGS

December 18-23, International Congress on Health Education, Paris.

Active Immunization Against Diphtheria.—The author reports the results of a systematic immunization of a group of nurses. The Schick test was positive in 58.5 per cent. During a four years' period all nurses with a positive Schick reaction were given injections of toxin-antitoxin, and as a result more than 80 per cent were immunized. In a small number the Schick reaction remained positive after two series of toxin-antitoxin injections. As a result of the immunization, there was a decrease in the incidence of clinical diphtheria among these nurses of at least 90 per cent as compared to a previous three years' period.—J. V. Cooke, *Amer. Jour. Dis. of Children*, June, 1922, 496.—(*D. G.*)

Fares to Cleveland

Approximate fares from various centers to Cleveland are indicated below. Pullman rates include surcharges.

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Chicago	12.28	18.42	3.75	3.00
Cincinnati	9.15	13.73	3.75	3.00
Denver	49.56	74.34	14.63	11.70
Detroit	5.93	8.90	3.63	2.90
Jacksonville	38.67	58.01	12.00	9.60
Los Angeles	91.26	136.89	27.00	21.60
Minneapolis	25.55	38.33	7.50	6.00
New Orleans	39.43	59.15	12.00	9.60
New York	20.55	30.83	5.63	4.50
Philadelphia	17.31	25.97	4.50	3.60
Portland, Me.	28.40	42.60	6.38	5.10
Providence	27.23	40.85	6.38	5.10
Pittsburgh	4.73	7.10	3.00	2.40
St. Louis	19.10	28.65	5.63	4.50
San Francisco	91.26	136.89	27.00	21.60
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Vol. XII NOVEMBER, 1922 No. 11

AN IDEAL HEALTH DEPARTMENT FOR A CITY OF 100,000 POPULATION*

(Section II from the Forthcoming Report of the Committee on Municipal Health Department Practice)

INTRODUCTION

THE chief results of our analysis of the activities of the health departments of the 83 large cities of the United States have been presented in Section I of this report, which includes a general discussion of the status of each particular phase of public-health work in the group of cities taken as a whole, while Section III will present a picture of the health situation in each individual city. It seemed to the Committee worth while to preface the detailed descriptions of the work of the large municipal health departments of the country as they exist at present (Section III) by a broad outline of what may be considered in the light of our best knowledge as a scheme of health service of a fully adequate character, in the hope that such a norm may be of value in judging of the efficiency which has been achieved in practice.

We fully realize the temerity involved in attempting such a task, and the wide difference of opinion which will be aroused by this or any other attempt to formulate anything in the nature of a standard plan of health department organization. We make the suggestions outlined below not as "the" ideal health department, but as "an" ideal health department, recognizing that local conditions must and should modify the best abstract scheme. The details of the plan here presented represent only the opinions of the authors, although in general outline it has the approval of the Committee.

It is believed that the scheme of organization presented is "ideal" in the sense that it represents the best practice of the day in each of the various lines of health department work, as observed in some one or more of the cities studied—not in the sense that it calls for anything remotely visionary. In some respects it is based on the average practice of the time, where this seemed adequate. In the newer lines of health work the standards suggested represent the practice of cities which lead in these particular lines. In practically no instance have we suggested any form of procedure which has not been demonstrated in some city under actual working conditions.

We have included in this outline only the fundamentals of modern municipal health service, omitting certain lines of

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work, for example, mental hygiene and industrial hygiene, likely to be important in the future but not now generally attempted by municipalities of 100,000 population. Nor has any specific provision been made for the care of the sick poor, outside the usual public-health dispensary services and the provision of public-health nursing.

In order to present a reasonably comprehensive plan it has, however, seemed essential to include all broadly basic elements of a modern public-health campaign in our scheme, and to assume that all will be performed by the municipal health department. In practice many of the functions described are frequently carried out by voluntary organizations, such as the visiting nurse association, anti-tuberculosis societies and the like, or by other departments of government, such as the board of education. Where these functions are thus provided for, the organization and the budget of the health department can be correspondingly reduced.

In order to make budget estimates it has been necessary to assume a concrete plan of organization which in its details can have no claim to generality. The outline presented must be understood to be subject to almost indefinite modification in accord with personal factors and local considerations. We believe, however, that approximately the service here set forth must in some way be furnished, and approximately the amount of money here specified must be spent by some one if the health of the community is to be adequately safeguarded.*

ORGANIZATION OF THE DEPARTMENT

It seems to us first of all desirable that the health officer shall have the support of a board of health or advisory council which should advise in regard to the general policies of the department, approve the budget prepared by the health officer and when legally permissible promulgate the Sanitary Code. The board should not, in our judgment, exercise any direct administrative authority. The appointment of subordinates, the assignment of their duties and the handling of specific administrative problems should be left wholly in the hands of the health officer. It is important, however, that the power to formulate a sanitary code for the preservation of the health of the community should be fully and specifically delegated to this board, subject only to the provisions of common and statute law and to the requirements of the state sanitary code.

The board of health should include the health officer, who should serve as chairman, and not more than six unpaid members appointed by the mayor, to serve for overlapping terms.

The health officer should be appointed by the mayor—where possible under civil service regulations and without limitation as to residence, to serve for a term not less than five years or better, during good behavior. He should be a full-time officer, and a trained sanitarian. It is desirable that he should be a physician, but whether a physician or not it is essential that he should be specifically qualified either by education or experience for administrative health work.

As a general plan of organization, subject to fundamental modification in the individual case, we suggest the division of the department of health into the following eight bureaus with the indicated subdivisions:

1. Bureau of Administration
   a. Division of Administration
   b. Division of Public Health Education
2. Bureau of Sanitation
3. Bureau of Foods
   a. Division of Milk
   b. Division of Foods

*We have been materially aided in the preparation of this plan by the admirable report of a previous Committee on Organization and Functions of Municipal Health Departments, *American Journal of Public Health*, May, 1912, p. 366, August, 1914, p. 690, and December, 1915, p. 1256.

4. Bureau of Communicable Diseases
   a. Division of Epidemiology
   b. Division of Tuberculous Disease
   c. Division of Venereal Diseases
5. Bureau of Child Hygiene
   a. Division of Infant Hygiene (Including the pre-school age)
   b. Division of School Hygiene
6. Bureau of Nursing
7. Bureau of Laboratories
8. Bureau of Vital Statistics

1a. *Division of Administration*

The general administration of the department of health in a city of 100,000 population should be conducted by the health officer with the assistance of a chief clerk and two stenographers.

The clerk should be capable of handling the purely routine office business of the department, leaving the health officer free to formulate policies, to maintain community contacts, to keep in close touch with his bureau chiefs, and to supervise field activities.

The salary of the health officer should be at least $5,000 a year, rising to $8,000 with continued and successful service. In fixing a salary so high we depart somewhat from current practice, since out of 54 cities having a population between 100,000 and 250,000 only nine paid their health officers over $5,000 in 1920, and none paid over $7,500. Nevertheless, we believe it to be absolutely essential that the health officer of an American municipality, if he is to accomplish results that are worth while, should be capable of real leadership in the medical profession and in the community. Such a man cannot be obtained without a salary somewhat comparable with what he would earn in private practice. To secure for this position a man of ability, and experience is the most important factor in the whole scheme of municipal health organization.

In outlining a plan for an adequate health department we have, therefore, set down in our budget the average salary of $6,500 for the health officer. With the clerk and stenographers and a reasonable allowance for postage, stationery, etc., the budget for administration will, therefore, be as follows:

Salaries—Health Officer	$6,500
Chief Clerk	2,000
2 Stenographers	2,000
Supplies and Maintenance	2,500
Total	$13,000

We have not attempted in this plan to make any allowance for the housing of the health department on acount of the manifold local considerations which will affect this problem. At present the offices of the health department are usually located in the city hall. We should like, however, to emphasize the great importance of adequate and attractive quarters for the health department and we believe that under ideal conditions the department should be separately housed in a health center building including most of the following features: First: Suitable quarters for the entire department with rooms and desk space for heads of the various divisions including the laboratory. Second: Fireproof vaults for the protection of the records. Third: Clinic rooms and examination facilities for child hygiene, prenatal, tuberculosis, venereal diseases and such other clinics as may be necessary. It is not essential that all clinical work be done in this building; but a definite schedule should be kept here so that the public will know definitely where they can be served. Fourth: A medical library and reading room for use by the physicians, dentists, and nurses of the community and anyone else who may be interested. Fifth: An assembly room large enough to accommodate medical, dental, and nurses' societies, and small groups of the general public. Dr. DeKleine, in the organization of one of the best health departments of the country at Flint, Michigan, built up a health center of this kind of which

he says: "The health center we occupied for the last three years, although only a remodelled old residence, has been one of the big factors in getting the community to think in terms of health."

1b. *Division of Public Health Education*

That increasingly important phase of public-health work which is concerned with the education of the public in the principles of healthy living should, on account of its intimate connection with department policies, be under the direct supervision of the health officer. It is almost always, therefore, a part of the bureau of administration.

In a well-developed department of a city of 100,000 population the following activities should be included under this head:

a. The preparation of an annual report intended to give to the intelligent citizen a clear idea of the accomplishments of the department, their costs, the statistical results achieved and the needs for future expansion.

b. The publication of a monthly bulletin which should be designed to keep physicians, nurses, social workers, teachers and other community leaders in touch with current local public-health problems.

c. The preparation (or collection from other sources) of special circulars on the control of communicable diseases, infant hygiene and the like.

d. The preparation of regular health articles, news stories and special feature stories for the daily press.

e. The organization of a lecture service for reaching women's clubs, church and labor groups and other civic organizations.

f. The preparation of exhibit material and the organization of public-health exhibits as occasion offers.

The work outlined above should receive a considerable share of the personal attention of the health officer. Its routine duties are amply sufficient to demand the services of a full-time assistant, who need not necessarily, however, be a physician. The employment of a young man or a young woman, experienced in the technique of popular education, and obtaining the necessary technical material from the health officer and his bureau chiefs, has worked satisfactorily in many instances.

We suggest, therefore, a relatively low salary figure with a modest allowance for printing the bulletin and for other incidental expenses.

Salary, Assistant in Charge of Health Education	$1,800
Printing and Other Expenses	2,000
Total	$3,800

2. *Bureau of Sanitation*

According to current tendencies in municipal health practice the bureau of sanitation of the department of health in a city of 100,000 inhabitants should include general nuisance inspection and the supervision of housing conditions in occupied buildings, but should not include the approval of building plans or the inspection of plumbing in new buildings. The latter functions are not primarily health functions and the health officer has administrative responsibilities of sufficient magnitude without being burdened with routine duties of this type. For the same reason the actual administration of the garbage and refuse collection and disposal should be handled by one of the engineering departments of the city rather than by the health department.

In order to fulfil its proper functions the bureau of sanitation should have at its disposal a broadly drawn legal definition of what constitutes a public nuisance. It should operate, so far as conditions of occupancy are concerned, under an adequate housing code, and it should have the right to issue permits for lodg-

ing-houses and offensive trades of various types. Its duties should comprise a prompt and efficient handling of complaints, but its principal attention should be given to regular and systematic inspections. Records should be kept classified by street and number, best perhaps, by the use of the envelope system. The aim of the bureau should be to secure voluntary compliance with its orders and to conduct as few prosecutions as possible.

Particular attention should be paid to the four problems of sanitation which are of major importance from the standpoint of disease control:

a. Privy vaults
b. Stable manure
c. Mosquito breeding
d. Rat breeding.

In a modern city of 100,000 population privies should be entirely eliminated as rapidly as possible; but those that remain should be maintained in a fly-proof condition. Manure should be stored in bins with impermeable bottom and removed weekly. Bodies of water, large or small, which may breed mosquitoes, should be specifically declared to be nuisances, and, in seaboard cities at least, rat-proofing ordinances should be in force.

While sewerage and sewage disposal, refuse collection and refuse disposal, should be administratively handled by other city departments, it is, of course, important that the health department should be cognizant of the results obtained, and should be ready to bring pressure to bear in the proper quarters if nuisance or danger to health results from a careless handling of these problems.

If the inspection of plumbing in new buildings be eliminated, the present practice of American health departments indicates that four inspectors should be able to handle the routine work of the bureau of sanitation. They can work best as district inspectors, each covering a section of approximately 25,000 population, although it is often well to provide for rotation of districts. The chief of the bureau under whom these district inspectors work should be a trained sanitary engineer, able to deal with the more complex sanitary problems of mosquito control, rat control, and the like, and to advise the department in regard to any engineering problems which may arise.

A reasonable organization for this bureau would seem to be the following:

Salaries: Chief of Bureau	$3,500
Four District Inspectors	6,000
Clerk	1,000
Maintenance	1,000
Total	$11,500

3a. *Division of Milk.*

The following elements seem to us essential for the adequate protection of the public from the danger of milk-borne disease:

a. An ordinance should be in force requiring the licensing of all milk-dealers operating within the city limits and pasteurization of all but milk from tuberculin-tested herds.

b. Inspections should be made at least once a year, of all farms supplying this city. The results of these inspections should by preference be recorded on the standard score card of the United States Department of Agriculture.

c. Creameries and milk stations should be inspected at least twice a month.

d. Pasteurization should be defined by law and the pasteurization of all milk not of certified grade should be required by ordinance. Pasteurization plants should be controlled by frequent inspection and the taking of continuous temperature records.

e. Temperature standards should be enforced with regard to milk in transit and as held for sale.

f. Samples for bacteriological and chemical examination should be collected at frequent intervals from stations, creameries, wagons and stores.

g. All cattle producing milk to be sold raw should be required to be tuberculin tested.

h. All handlers of milk to be sold raw, and all handlers of milk after pasteurization should be subject to systematic medical examination.

For the supervision of the milk supply of the city along the lines outlined above, two inspectors will be required, one devoting his attention to farm inspections and the other to the supervision of creameries and pasteurizing plants within the city limits. They should work under the direction of the chief of the bureau of foods, who should, himself, be in close touch with the larger pasteurizing plants and should be competent to advise as to their operation. If he is a veterinarian, as suggested in the succeeding section, he should take direct charge of the supervision and testing of herds producing Grade A raw milk. The time of the two inspectors should be sufficiently free for them to keep their own records, so that no clerical assistance need be provided here. A fairly large allowance for maintenance must, however, be made to allow for traveling expenses in the inspection of farms. We would suggest the following budget:

Salary, Chief (one-half salary charged here, other half under Foods)	$1,500
Two Inspectors	3,000
Maintenance	1,000
Total	$5,500

3b. *Division of Foods and Drugs.*

Aside from the control of the milk supply, which has been discussed above, the supervision of foods and drugs by the municipal department of health should include the following activities:

a. The granting by some branch of the city government of permits for all premises where food is prepared or sold otherwise than in package or can. This should, for example, include hotels, restaurants, bakeries, groceries, candy stores, markets, slaughtering establishments (including poultry), soda fountains, ice cream stands and fruit stands.

b. The regular inspection and scoring of such establishments.

c. The promulgation and enforcement of special regulations preventing the sale of shellfish from polluted sources.

d. The promulgation and enforcement of special regulations requiring the sterilization of utensils used in serving food and drink to the public.

e. The enforcement of special regulations requiring the protection of all foods and drinks to be consumed by the public without subsequent cooking from possible contamination with disease germs by means of dust, flies and other insects, and promiscuous handling.

f. The maintenance of a public abattoir for local slaughtering and the exclusion from the city of all meat not inspected either at this abattoir or elsewhere under the federal law.

g. The medical examination at regular intervals of all persons handling food for public consumption. The practical value of such work is not demonstrated but it is included here since the practice is already so general.

h. The control of the quality and strength of drugs on sale in the city by the systematic collection and analysis of samples where this is not otherwise provided for under city or state departments.

For the carrying out of the routine inspection work, two special inspectors should suffice, according to general present practice. They should work under the direction of the chief of the bureau of foods, who should be a veterinarian, if maximum efficiency is to be secured.

We have made no allowance for the maintenance of the abattoir, since this can be made self-supporting by a proper fee system and the cost of the general inspection can in some measure also properly be met by a fee system. The medical examination of food handlers should be conducted by the bureau of communicable diseases where it logically belongs. The examination of drugs is provided for under the laboratory budget. For the

specific purposes of food control, the following will be necessary:

Salary, Chief (one-half salary charged to milk control)	$1,500
Two Inspectors	3,000
Maintenance	600
Total	$5,100

4a. *Division of Epidemiology.*

The Bureau of Communicable Diseases, according to the plan here presented, includes the control of tuberculosis and venereal diseases, as well as the more acute communicable diseases. Separate divisions are provided, however, for the former maladies. The routine control of the acute communicable diseases should in every city include the following types of activity:

a. An effective system of reporting the ordinary communicable diseases. On the average, and aside from epidemics of special virulence, less than 100 cases per death in measles, whooping cough and scarlet fever, less than 15 cases per death in diphtheria and 10 in typhoid fever, and less than 7 cases per death in tuberculosis, indicate definitely incomplete reporting.

b. Systematic investigation of each reported case by a nurse, and in the more serious diseases, such as diphtheria, smallpox and chickenpox in adults, verification by a medical officer.

c. The taking of samples for laboratory diagnosis or release, or both, according to the disease, in diphtheria, typhoid fever, tuberculosis, malaria, syphilis, epidemic cerebrospinal meningitis and pneumonia (for typing).

d. The enforcement of isolation along reasonable lines, adapted to each disease, and for a reasonable length of time, in general as suggested in the *Model Health Code* prepared by the Committee on Model Health Legislation of the American Public Health Association (AMERICAN JOURNAL OF PUBLIC HEALTH, XI, 259, March, 1921). Isolation should always include as its most important element the concurrent disinfection of infected discharges.

e. The carrying out of reasonable terminal cleansing on the termination of a case, fumigation to be used as a routine procedure only in insect-borne diseases.

f. The hospitalization of all cases of communicable diseases which cannot or will not be so cared for at home as to avoid the danger of disseminating infection to others. It will, in general, be desirable to have a maximum of 50 hospital beds available for communicable diseases to care for emergencies, although not over 20 such beds will be occupied on an average. In case no hospital beds suitable for isolation are available, the department of health must construct and maintain its own contagious disease hospital; but it will often be more economical to work out the problem by a coöperative arrangement with some existing hospital in the city.

g. There must be systematic provision for the supervision of contacts, and the detection and control of carriers in all important communicable diseases. This and other phases of the work of communicable disease control should be closely correlated with the routine work of the medical inspector of schools.

h. There must be an ample free supply of the important sera and vaccines; and one of the most fruitful tasks which the health department can perform will be the conduct of organized and vigorous campaigns for the popularization of smallpox and typhoid vaccination, Schick testing and toxin-antitoxin immunization.

i. Finally, the course of all communicable diseases should be followed as a routine measure on spot maps and weekly charts and every case of the more important diseases, such as smallpox, diphtheria and typhoid should be intensively studied from an epidemiological standpoint.

The chief of the bureau of communicable diseases should, of course, be a physician and a full-time employee. We are suggesting in the plan here presented

that he should be in administrative charge of the campaign against tuberculosis and venereal diseases, as well as of the work directly appertaining to the division which handles the isolation of acute communicable disease. He should be a man of high qualifications and of public-health experience, with a salary ranging from $3600 to $5000. He might be given the rank of assistant health officer and designated to take charge of the department in the absence of the health officer himself. The bureau of communicable diseases should also include an inspector, a clerk and one nurse, or nursing service from district nurses of equivalent amount. Since the nursing service of the entire department will be provided for later along generalized lines, this latter item is not included in this or other special bureau budgets. We have provided $2,000 for maintenance of this bureau as a whole (including the provision of sera and vaccines), and $40,000 for hospitalization expenses. The latter figure is reached on the assumption that an average of 20 beds will be occupied, and that the cost will be $40 a bed per week. Every effort should be made to recover a part of the cost of the hospital treatment by charges against those able to meet them; but economic considerations should not be allowed to interfere with the hospitalization of all cases which ought to be hospitalized for the public good.

The budget for the bureau as so far provided will, therefore, be as follows:

Salary, Chief	$4,300
Inspector	1,500
Clerk	1,000
Maintenance	2,000
Hospital	40,000
Total	$48,800

4b. *Division of Tuberculosis.*

It is a somewhat curious fact that the campaign against tuberculosis, the chief of the communicable diseases, should in the past have been left so largely to voluntary agencies, finding little or no place in the official program of the health department. Where tuberculosis nursing and tuberculosis dispensary work are well conducted by private agencies, it may no doubt be well to leave these specific activities to them. The municipal health department cannot, however, divest itself of its primary responsibility for making certain that the machinery for controlling this disease is in existence and efficiently operating; and it is, in our opinion, essential that there should in any case be at least one full-time medical man on the staff of the department charged with the duty of planning and coördinating the entire antituberculosis movement. In the present discussion we have assumed, as in all similar cases, that the entire field is to be covered under health department auspices. If certain elements in the program are supplied from other sources, the staff and budget can be correspondingly reduced. The following essentials should be provided in every community of 100,000 population.

a. An effective law for the reporting of cases of tuberculosis and a systematic registration of all such cases. As a matter of fact, there exist about 9 active cases of tuberculosis to every annual death in a given community. The most complete reporting actually attained in practice gives about 7 new cases per year per annual death, which may be considered as indicative of reasonable attainment.

b. In order to aid in the early detection of cases, an expert consultation service should be available so that the practicing physician may have at his disposal the services of a specially trained expert in this disease.

c. It should be the aim of the director of antituberculosis work to see that all cases carried on the register are so cared for as not to be a menace to others, and that each case has the opportunity to secure the nursing and medical care, at home or in an institution, which is neces-

sary for his welfare. If a private physician specifically undertakes these responsibilities, well and good; otherwise, the director should assume them.

d. In order to make certain that the spread of infection from human sources is controlled, concurrent disinfection of sputum, eating utensils and the like should be secured so far as possible, particularly by using the educational influence of the physician and nurse; terminal cleansing should be carried out as needed; a rigid antispitting ordinance should be enforced; and wilfully careless consumptives should be forcibly segregated.

e. Adequate dispensary facilities should be provided for the diagnosis of tuberculosis and the treatment of ambulant cases. For a city of 100,000 inhabitants, there should be both day and evening clinics. If the disease is to be effectively controlled, 400 patients a year may usually be expected to come to these clinics, making an average of 10 visits a year. Medical service must be on a salary basis if dependence is to be placed upon it, and detailed records should be kept along the lines laid down by the Association of Out-Patient Clinics of New York City.

f. Quite as important as the dispensary system is the organized work of tuberculosis nursing, which should include the constant search for new cases among contacts and elsewhere, the supervision of home treatment in the substantial proportion of instances where home care is desirable, and the follow-up of recovered cases discharged from dispensaries and sanatoria. Good follow-up will require about 8,000 nursing visits paid to tuberculosis cases per year.

g. Sanatorium and hospital facilities for institutional care should be provided to the number of 100 beds for a city of 100,000 population. Advanced cases may often be cared for in general hospitals or isolation hospitals. They should not be treated in sanatoria. The cost of tuberculosis sanatoria has not been included in our estimates, since for cities of 100,000 population it is so generally provided on a county basis.

h. The health department should encourage the development of definite provision for supervising and finding suitable employment and suitable living conditions for arrested cases. This is one of the points at which we most often fail at the present time.

i. Finally, the usual machinery of open-air schools, day camps, etc., should be provided for the care of contacts and "pre-tubercular" children.

The stimulation and coördination of the entire campaign outlined above should be placed in the hands of a single director who may, however, for compactness of organization, be attached to the bureau of communicable diseases. He should be an expert in tuberculosis, sufficiently competent to serve the clinics and to act as consultant for local physicians. He should have one part-time assistant to relieve him of some of the burden of clinic duties. The supervision of cases in the homes should require the services of four nurses (or equivalent time for a generalized staff as provided for later), and the part-time of a social worker who might also serve the venereal disease clinic in a similar capacity. This should make the budget for tuberculosis (exclusive of nursing) as follows:

Salaries, Director of Division	$4,000
Medical Assistant (part-time)	1,000
Social Worker (half-time) also serving V. D. Clinic)	900
Clerk (half-time, also serving V. D. Clinic)	500
Maintenance	1,500
Total	$7,900

4c. *Division of Venereal Diseases.*

An adequate health department program for combating venereal diseases involves the following elements:

a. A law requiring notification to the local health authority of all cases of venereal diseases. At present, on account of the scientific and administrative facts

relating to these diseases, it is common for the health officer to permit physicians who will act as his representatives to report these cases by number and withhold names and addresses, so long as patients remain under treatment and observe all precautions to prevent exposure of others to infection.

A reasonably efficient system of reporting should show at least 1,500 new cases per year in a city of 100,000 population, according to the data at present available for making such an estimate.

b. Ample laboratory diagnostic facilities should be available for supplementing both clinic and private physicians' examination for the early discovery of infected persons. The free laboratory diagnosis facilities of the municipal health department should be able to take prompt care of all requests of physicians, clinics and hospitals not provided for by state or private laboratories.

c. There should be legislative provision for the examination of presumably infected persons; and for the compulsory segregation of infected persons whose conduct is such as to constitute a menace to the public health. This naturally implies a suitable place of detention where such segregation can be effected.

d. Since the great majority of venereal disease cases are ambulatory treatment cases, and early detection, followed by efficient intensive treatment, is vitally important not only for the welfare of the patient, but for the protection of the public through terminating or shortening the infectious period of the case, health departments should stimulate and in so far as may be necessary actually operate clinics for venereal diseases under such conditions of free and pay service as may be practicable.

Treatment clinics operated by a competent paid staff in a city of 100,000 population may be expected to care for as many as 1,500 cases a year if the system is adequate.

e. Hospital facilities for a limited number of bed cases form a necessary provision for the venereal diseases, but these beds may be provided in general hospitals. Local circumstances affect the number of beds to be used, but not less than ten beds per 100,000 population should be provided.

f. An organized educational campaign dealing not only with the dangers of venereal diseases and the necessity for prompt treatment, but also with the constructive ideals of race hygiene, is most important. In these phases of the program the health department can coöperate with other official departments, such as the department of education, and with important voluntary agencies.

The enforcement of laws for the suppression of organized vice and the provision of recreation facilities are also essential parts of the campaign against venereal diseases; and the department of health can greatly strengthen and promote the work of the proper departments and voluntary agencies concerned by advocating vigorous programs in this direction as an important factor in combating the venereal diseases.

Among other special measures bearing upon the general problem of venereal diseases, the control of ophthalmia neonatorum will be discussed under infant hygiene.

For the execution of the program outlined above, there should be attached to the bureau of communicable diseases a full-time director of the venereal disease division, with a part-time assistant, two nurses, a part-time social worker and a part-time clerk (the last two devoting the rest of their time to tuberculosis or other work). Leaving the nursing service to be considered later, this gives the following budget:

Salary, Director of the Division (and of clinics)	$4,000
Medical Assistant (part-time)	1,000
Social Worker (half-time)	900
Clerk (half-time)	500
Maintenance	2,500
Total	$8,900

5a. *Division of Infant Hygiene.*

The protection of the health of mothers and young children is perhaps the most important of all the functions of the health department. In a city of 100,000 inhabitants, it should constitute a division of the bureau of child hygiene and should include the following activities:

a. The registration of all births within 48 hours.

b. An organized system of prenatal clinics for the medical examination and hygienic instruction of expectant mothers. Our ideal for the present should be a registration of expectant mothers equal to 25 per cent of the number of births, and registration should take place by the fifth month of pregnancy.

3. Adequate provision for obstetrical care through hospitalization (25 per cent or more of all deliveries can profitably be handled in hospitals) and out-patient obstetrical nursing service.

d. Provision for the licensing and supervision of midwives.

e. Free distribution and routine administration of silver nitrate.

f. A system of infant welfare stations for the medical examination and hygienic supervision of infants and young children. These clinics should be operated by salaried physicians and should ideally include the registration of 50 per cent of all infants born. An average of 15 visits per year should be made to these clinics by each infant under one year of age on the register of the clinic.

g. Clinics and home supervision (at less frequent intervals) of children between one and five years; the objective being to bring all children up to school age with normal growth and nutrition for their age, and with all remediable defects corrected, including errors of posture and oral defects. All children should be kept on the records until they enter school and pass under the care of the school physicians.

h. The necessary nursing service to provide for assistance at clinics and for extensive and systematic home visitation of expectant mothers and infants. The equivalent of the time of 15 nurses will be needed to perform this work properly.

i. A general educational campaign in regard to the essential of infant hygiene including the organization of Little Mothers' Leagues (discussed more fully in the following section on School Hygiene).

In the plan of organization here proposed, the care of the health of mothers and infants is combined with the supervision of the health of school children in a bureau of child hygiene, since the objective in both cases is the same, the medical examination and hygienic instruction of supposedly well persons, as contrasted with the work of the bureau of communicable disease, which deals primarily with the sick. One-half of the salary of the bureau chief must, therefore, be charged to infant hygiene, and in addition we have allowed a sum for the conduct of the medical work of the prenatal and infant welfare clinics, which it may often be best to devote to the employment of part-time physicians who are specialists in infant and maternal care. Excluding the nursing service (which is, of course, the largest item but which will be considered later), the budget will be as follows:

Salary, Chief of Bureau (half-time)	$ 2,000
Clinical Medical Service	5,000
Clerical Assistance	2,000
Maintenance	1,500
Total	$10,500

5b. *Division of School Hygiene*

The problem of organizing effective machinery for the promotion of the health of children of school age is greatly complicated by the fact that there are strong logical reasons for allying such work with the department of health on the one hand and with the department of education on the other. Since the work is concerned with the school-child, the educator contends, and with much rea-

son, that it is in his province, but since the work consists in health promotion, the health officer claims the task as his. On the whole, we are inclined to believe that the arguments for alignment with the health department are the stronger ones, in view of the value to school physicians and school nurses of membership in a strong professional organization devoted primarily to health conservation, and in view also of the importance of knitting the machinery which safeguards the health of the individual from the cradle to the grave into one continuous whole. We have, therefore, assumed in the following discussion that, while the department of education is responsible for the teaching of hygiene to the child, the department of health is to be charged with the supervision of his actual physical condition. A subsidiary but important consideration is to be found in the fact that health supervision is just as essential in parochial and other private schools as in the public schools and that, for obvious reasons, it can be arranged for much more easily by the health department than by the department of education.

The chief elements in a complete system of school health supervision are as by a nurse of children who are referred follows:

a. The daily emergency examination by teachers as suspected of communicable disease or physical handicap.

b. The complete physical examination of all children for the detection of physical defects. This examination should be made three times during the school life of the child, at entrance and twice thereafter. It should include examination of the heart and lungs and posture (the examination to be made with ordinary clothing removed), and the parents of the child should be invited and urged to be present at the examination, in order to enlist their interest in its findings in the most effective way. Full records of all routine and emergency examinations should be kept on a card maintained continuously for the entire school life of the child.

c. Careful follow-up work by nurses in the home to ensure the correction of physical defects and the formation of correct health habits.

d. School clinics for the correction of defects which would otherwise not be remedied.

While, as stated above, we believe that this program can best be carried out by the department of health, it is clear that its success depends on the closest possible correlation with the work of the department of education. The burden of selecting suspicious cases for daily emergency examination must necessarily rest upon the teacher, and its effectiveness will depend on her acquaintance with the obvious signs of communicable disease and physical defect. In Detroit, even the first sifting for the routine physical examination is conducted by the teachers. On the other hand, the conduct of Little Mothers' Leagues and other forms of extra-curricular instruction may often be best performed by the school nurse who thus supplements the work of the teachers in health education. It will, therefore, be desirable to organize a joint advisory committee, representing both the department of education and the department of health, to make recommendations in regard to all general problems affecting the health of school children. The school nurse should, in our judgment, be made responsible not only for the first sifting of the daily emergency inspection, but also for that part of the routine of the regular physical examinations which does not require expert medical knowledge, such as the ordinary tests for hearing and vision; thus freeing the time of the school physician for careful medical examinations and for the service of school clinics. It is a wasteful procedure on the other hand to use the time of the nurse in treatments for pediculosis which should be given in the home or, if necessary, by a special type of assistant to the nurse.

The work of school health supervision, according to the plan here outlined, would be placed under the chief of the bureau of child hygiene, who would devote half his time to this work. He should be assisted in a city of 100,000 population (with about 16,000 school children) by five part-time physicians who would make the medical examinations and conduct school clinics.

Nursing service equivalent to the time of eight nurses would be necessary for the school examinations, the follow-up work in the homes, and the conduct of Little Mothers' Leagues. In most cities, the school nurses specialize in work for school children, but we believe that the advantages of generalized district service hold as good here as in other fields of public-health nursing. With a ratio of one generalized district nurse to 2,000 or 2,500 population, each nurse would have an average of 350 to 400 school children under her charge, so that her district work need not be seriously hampered. There are, of course, difficulties presented by the lack of coincidence between residence districts and grades, or even schools, but the experience of a number of cities, such as Columbia, S. C., and Asheville, N. C., shows that such difficulties can be overcome, with substantial gains in efficiency over the specialized plan.

For the care of the teeth of the school children, at least two dentists and five dental hygienists should be provided.

The budget for supervision of the health of school children (exclusive of nursing service) should, therefore, be about as follows:

Salary, Chief (half-time)	$ 2,000
5 Medical Inspectors (part-time)	7,500
2 Dentists	5,000
5 Dental Hygienists	5,000
Clerk	1,000
Maintenance	2,000
Total	$22,500

6. *Bureau of Public Health Nursing*

The public-health campaign of the present day is becoming more and more clearly an educational movement, dominated by the motive of improving the hygienic conduct of the individual life with the aid of preventive advisory medical service. In teaching the individual the principles of healthy living, and in bringing the individual into timely contact with the medical resources of the community, the public-health nurse has proved herself the most useful agent at our disposal; and the program of modern public-health work in a given community may be measured very closely by the extent to which public-health nursing service has been developed.

The public-health nurse is an essential agent for the performance of the following fundamental functions:

a. The home visitation of cases of acute communicable disease, for the instruction of attendants in the technique of isolation and concurrent disinfection, for the taking of cultures and preliminary examination of contacts and for the dissemination of knowledge in regard to the value of vaccine and serum therapy.

b. The assistance of physicians at tuberculosis clinics, and home visitation for bringing contacts and suspicious cases to the clinics, for instruction of patients in home care and for the following up of arrested cases.

c. The assistance of physicians at venereal disease clinics, and home visitation in special cases where such visitation may be advisable.

d. The assistance of physicians at infant welfare clinics and prenatal clinics, and home visitation for the instruction of mothers and expectant mothers in the hygiene of maternity and infancy.

e. The assistance of school physicians in the examination of school children, and home visitation to secure needed treatments and to instruct mothers and children in the hygiene of childhood.

For fulfilling these functions it has been indicated that nursing service equivalent to a staff of the following size should be provided in a city of 100,000 inhabitants:

For communicable disease control	1 nurse
For tuberculosis control	4 nurses
For venereal disease control	2 nurses
For infant welfare work	15 nurses
For school health work	8 nurses
Total	30 nurses

A staff of 30 nurses would thus be adequate for the discharge of what may be called the strictly preventive functions in the public-health nursing field. The experience of the last ten years has convinced many persons, including the writers, that a generalized district service in which one nurse does all the public-health nursing for a compact area is preferable to a plan under which half a dozen nurses visit a family for different purposes—partly because of the economy of the nurse's time involved in covering a small district and even more because of the superior personal contact which can be established by a nurse who really knows, and is intimately known by, the families under her charge. In the second place, it appears that a public-health nursing service which combines the care of the sick on a visiting nurse basis with the teaching of hygiene is far more effective as an educational force than a service devoted to education alone, because of the increased influence acquired by the nurse who actually renders service in time of suffering.

According to modern conceptions the ideal plan includes under one organization both the educational work performed by most health department nurses in the past and the care of the sick in the home as now performed by district or visiting nurses, usually under private auspices. We suggest, therefore, the organization in the department of health of a combined generalized public-health nursing service including all branches of health instruction, and also the rendering of hourly nursing care—a step which seems radical in view of general existing health department practice, but one which seems fully justified by the experience of private district nursing associations, by the practice of community nursing in small towns, and by the results already attained under health department auspices in half a dozen cities. There is no substantial reason, aside from tradition, why such service should not be in part supported, so far as bedside care is concerned, by payments from patients able to pay and from insured and other groups, although this may require special enabling legislation in many cases.

In order to supply a service of the type outlined above it would be necessary to supplement the service needed for specific preventive tasks (equivalent to the time of 30 nurses) by service for hourly nursing equivalent to the time of 20 nurses, making a total staff of 50 field nurses for a city of 100,000 population. It would be best to divide the city into 40 districts of approximately 2,500 persons each and to use the additional ten nurses as "floaters" to meet emergencies, and cover vacation periods.

Whatever be the form of nursing adopted, whether generalized or specialized, we consider it to be essential to the highest efficiency that all the nursing work of the department of health should be organized in a separate bureau and under the direction of a chief who is herself a nurse. Even where a specialized service is provided, and where the actual routine of the day's work of the nurse may be directed by the medical officers in charge of tuberculosis or infant hygiene, adequacy of technique and uniformity of records and procedure should be secured by nursing supervision; for the morale of a nursing staff is always highest when under the direction of a

professional colleague who really understands the procedures of nursing. True democratic leadership over a group is possible only when the group is conscious of superior skill based on training and experience in the details of the work, and the consequent ability to render help in the solution of the problems of the individual members of the group. For the administration of such a large organization as is here provided for, a woman of experience[1] and high natural capacity will be needed, and the salary should be commensurate with those paid to the other more responsible bureau chiefs.

Adequate supervision is one of the vital essentials of good public-health nursing, and for a staff of 50 field nurses at least 6 supervisors should be provided, including among their number specialists in communicable disease nursing, tuberculosis nursing, venereal disease nursing, infant hygiene and school hygiene. If the generalized plan is to succeed, the work of the generalized field nurses must be guided by specialists of this type, and the staff must be so organized that staff nurses will consult these specialists, whenever in doubt, as to the solution of the problems they meet.

On the plan proposed, the budget of the bureau of public-health nursing will be a large one, as indicated below. We feel justified, however, in assuming that 15 per cent of the gross cost can be collected under a proper administrative plan from sick patients and insured groups, making the total cost about 83 cents per capita, an allotment none too high for a public-health nursing service adequate for modern requirements. The size of the budget should depend somewhat upon the community, because of the variation in the cost of living in different communities, and also because of the fact that we are coming to realize that it may be necessary to pay higher salaries in order to retain the right type of nurse in communities where living and social conditions are undesirable. The budget should be about as follows:

Salaries, Chief of Bureau....	$ 4,000
6 Supervisors	12,000[1]
50 Staff Nurses	70,000[1]
Clerical Staff	5,000
Maintenance	7,000
	$98,000
Income from Fees.....	14,700
Net Budget	$83,300

(1) Average salaries.

7. Bureau of Laboratories

The laboratory of the department of health should be prepared to render the following services:

a. The bacteriological examination of cultures for diagnosis and release in diphtheria (including virulence tests), tuberculosis, typhoid fever, malaria, syphilis, gonorrhea, pneumonia (typing) and, in southern cities, hookworm and other intestinal parasitic diseases.

b. The chemical and bacteriological examination of milk.

c. The chemical and bacteriological examination of the public water supply and of private wells and bottled waters. If the public water supply is regularly and adequately examined in a laboratory attached to some other department of the city government, these tests may be omitted by the health department, but in such case provision should be made for the daily transmission of the results of all such examinations to the health department.

d. The chemical and microscopical examination of foods and drugs.

e. Other special tests, such as examinations of pathological specimens, test-

(1) This should include: (a) Fundamental technical training as outlined by the three national nursing associations.
(b) Completion of a course in public-health nursing in a recognized postgraduate school, or as an alternative, at least one year of experience as a member of a staff of a well organized public-health nursing association, which affords good teaching and supervision. This experience should include child-hygiene nursing.
(c) Demonstrated ability to direct the work of a group of public-health nurses.

ing of disinfectants and the like as occasion may require.

In addition to this regular routine the staff of the laboratory should have time and opportunity for research along the lines of public-health bacteriology and chemistry, for the direct value of the results attained, and because it will never be possible to retain the services of really competent experts unless such opportunities are offered.

For a city of the size we are considering the chief of the bureau of laboratories should be a bacteriologist, with one trained assistant who should be a chemist but able also to assist in bacteriological work. The laboratory should be able to make some 20,000 examinations a year, and its budget should be about as follows:

Salaries, Chief of Bureau	$4,000
Assistant (Chemist)	2,000
Helper	750
Clerk	1,000
Maintenance	2,000
Total	$9,750

8. *Bureau of Records and Statistics*

The last of the fundamental bureaus of the health department, that of records and statistics, should perform the following functions:

a. The registration of births, marriages and deaths. This function should in all cases be localized in the health department, since both the registration and the analysis of vital statistics require expert medical knowledge, and since the sound conduct of the work of the health department depends upon the most intimate contact with the data of vital statistics. A reasonably adequate system of registration must rest upon legislation substantially identical with the Model Laws for Birth and Death Registration endorsed by the United States Census Bureau, and should secure the reporting of practically all deaths and of at least 95 per cent of all births. Death returns should be constantly scrutinized and verified and corrected by communication with physicians.

b. The tabulation and analysis at monthly intervals of the data obtained from birth and death registration and also from the reports of cases of reportable disease sent in to the bureau of communicable disease. These tabulations should bring out such correlations as are involved in the distribution of deaths by sex and age, by sex and district, by age and district, by nativity and district, by cause and district, by cause and sex, by cause and month.

c. The preparation of standard forms and procedures for record keeping throughout the department of health and the statistical analysis of accumulated data as required.

d. In addition to such routine activities the bureau of records and statistics should, like the bureau of laboratories, be a research bureau, constantly, as time permits, carrying on special studies as to the trend of mortality rates, the demographic composition of the population and similar problems of direct importance to administrative health authorities.

The work of this bureau should be conducted, in a city of 100,000 inhabitants, by the bureau chief with one high-grade clerical assistant capable of making charts. It would be unreasonable to expect a very high salary to be paid for statistical work in a city of this size but the sum indicated below should be sufficient to attract a young man or woman who has taken a C. P. H., with special work in statistics. The budget suggested is as follows:

Salary, Chief	$2,500
Clerk and Draftsman	1,500
Maintenance	500
Total	$4,500

THE HEALTH DEPARTMENT BUDGET

We have attempted in the foregoing pages to build up, step by step, a health

department organization competent to deal adequately, but in no extreme or fanciful fashion, with the fundamental problems of municipal health administration. It remains now to combine the various bureaus and sections—which gives us the following budget for the department as a whole:

however, in the direction of transferring such health activities as these contemplated in the outline above from private to public auspices.

For cities of over 100,000 population the plan outlined will, of course, require substantial modification, perhaps with the creation of bureaus instead of divisions

Bureau	Division	Salaries	Maintenance	Total
1. Administration	a. Administration	$10,500	$ 2,500	$13,000
"	b. Public Health Education	1,800	2,000	3,800
2. Sanitation		10,500	1,000	11,500
3. Foods	a. Milk	4,500	1,000	5,500
"	b. Foods	4,500	600	5,100
4. Communicable Diseases	a. Epidemiology	6,800	2,000	8,800
" "	b. Tuberculosis	6,400	1,500	7,900
" "	c. Venereal Diseases	6,400	2,500	8,900
5. Child Hygiene	a. Infant Welfare	9,000	1,500	10,500
" "	b. School Hygiene	20,500	2,000	22,500
7. Laboratory		7,750	2,000	9,750
8. Vital Statistics		4,000	500	4,500
Total for Fundamental Health Activities other than Nursing and Hospitals		$92,650	$19,100	$111,750
6. Public Health Nursing		77,350	5,950	83,300
Communicable Disease Hospital				40,000
			Grand Total	$235,050

The budget proposed above will no doubt appear large on first consideration. Excluding the cost of hospitalizing cases of communicable disease, it comes to $1.95 per capita, about four times the average allotment made for municipal health departments of the present day. It must be remembered, however, that our budget includes many types of service, such as infant welfare, tuberculosis clinics, and above all, public-health nursing service, which are now generally performed by private agencies. If the expenditures of such agencies for such purposes be added to the appropriations of the health department, we shall find in these cities which have nearly adequate facilities, a total approximating the budget set forth above.

From a purely financial standpoint it perhaps matters little whether the cost of health service is met by taxation or through private generosity. The general tendency of the present day is clearly, in certain instances, and probably with some reduction in per capita cost.

It seems important to repeat that no new and untried lines of public-health work have been included in the outline here presented. In order to be on the conservative side, we have made no provision even for such activities as those of mental hygiene and industrial hygiene which we, in common with others, believe should be undertaken by a progressive department, but which are not yet so generally practiced as to have become standardized municipal health department functions.

Approximately the staff and approximately the budget indicated above (whether from public or private services) are in our judgment essential to the adequate protection of the health of the community; and every dollar spent along the lines laid down will bring ample return in the strengthening of the vital force and the economic resources of the community.

PRESENT STATUS OF OUR KNOWLEDGE OF THE VITAMINS AND ITS APPLICATION TO THE DIETARY

(By request of the Section of Food and Drugs this paper was prepared by the Committee on Nutritional Problems for presentation at the Annual Meeting of the American Public Health Association, Cleveland, October 17, 1922.)

At present all students of the subject accept as fully proved the existence of at least three vitamins, which for convenience are designated as "Vitamin A," "Vitamin B," and "Vitamin C."

It is not proved that any one of these three designations stands for a single chemical substance. In fact there is experimental evidence that at least two substances may be involved in the effects hitherto attributed to "Vitamin A"; and similarly in the case of "Vitamin B." For the purposes of the present paper, it seems best to present our summary under the familiar headings of Vitamins A, B and C. And because of limitation of space we confine the paper to those aspects of the subject which seem likely to be of greatest interest to members of the American Public Health Association.

Vitamin B

Of the substances now known as vitamins, the one whose existence was first clearly described as essential to animal nutrition, is the antineuritic substance discovered but not isolated by Eijkmann (1890, 1896, 1897, 1897a, 1898, 1906).* To this substance the name vitamin was given by Funk (1911, 1912a, 1912b), and it is this substance which is ordinarily referred to when the word vitamin is used without qualification. Beriberi is due to the use of diets deficient in this vitamin. Most frequently such deficiency has been attributable to an excessive dependence upon white rice (Vedder, 1913); but that the rice itself is not a necessary factor is shown by the occurrence of cases of beriberi in Newfoundland where the dietary deficiency was brought about by too exclusive a use of fine white flour (Little, 1912). In either case the use of the whole grain instead of the highly milled product will prevent the disease, and will cure cases which are not too far advanced. Beriberi or nutritional polyneuritis is easily produced experimentally in fowls or pigeons, and by means of such experiments much has been learned regarding the properties of the antineuritic vitamin and its distribution among food materials.

The water-soluble growth-promoting substance which McCollum designated "water-soluble B" is generally believed to be identical with the antineuritic vitamin and the term Vitamin B is thus taken as referring to the substance having both of these properties.

On diets otherwise adequate but lacking the B vitamin young animals (rats) quickly cease to grow and begin to lose weight and develop a condition of general weakness, which may include symptoms of polyneuritis, though sometimes death occurs before the nerve symptoms are distinctly developed. While often referred to as "growth-promoting," this vitamin (like each of the others) is essential to normal nutrition at all ages. In mammals a deficiency in Vitamin B in the diet causes loss of appetite, commonly followed by a more complex and less clear-cut set of symptoms than in the case of birds. These symptoms are grouped by McCarrison in order of prominence as follows: undernutrition, derangement of function of the organs

*In the preparation of this paper we have drawn freely upon the American Chemical Society monograph, *The Vitamins*, by H. C. Sherman and S. L. Smith (Chemical Catalogue Company, New York, 1922); and because of limitations of space the reader is referred to that monograph for the titles of original publications which can be readily found in the bibliography of the monograph from the authors' names and years of publication as given in the text of the present article. For lack of space here, reference may also be made to the monograph of Sherman and Smith for summaries of chemical and physical properties of the vitamins.

of digestion and assimilation, disordered endocrine function, and malnutrition of the nervous system. A partial but not complete deficiency in this vitamin leads to impaired growth and a general undermining of health and vigor, with increased susceptibility to infectious disease. McCarrison (1919, 1919a, 1919c, 1921), working chiefly with pigeons, finds little difference between the animals deprived of Vitamin B only and those deprived of all three vitamins (probably because in this species the characteristic effects of lack of Vitamin B show themselves more quickly and prominently than do the effects of a lack of Vitamin A or C). As the result of vitamin starvation a slowing of metabolic changes generally and a fall of body temperature were noted. The adrenals were enlarged but other organs lost weight—the thymus most, and then, in order, testes, spleen, ovary, pancreas, heart, liver, kidneys, stomach, thyroid and brain. His observation of marked atrophy of testes and ovaries is in line with the finding by Drummond (1918) that sterility followed quickly in a male rat deprived of Vitamin B; and with the reported tendency to amenorrhea among beriberi women (Blunt and Wang, 1921). McCarrison believes that his findings "may afford some explanation of the genesis of that great mass of ill-defined gastro-intestinal disorders and vague ill health which forms so large a proportion of human ailments at the present day."

Osborne and Mendel, and Kerr in Mendel's laboratory, have repeatedly demonstrated the marked effect of vitamin upon the appetite; and recently Cowgill and Mendel (1921) have shown that if a dog on a diet deficient in this respect can be induced to eat enough to maintain life there develops a condition strongly resembling that of human beriberi.

Thus the need of this vitamin and the nature of the injury which follows an insufficient intake of it are essentially the same for the mammals, including man, as for the fowls and pigeons with which the experiments upon this vitamin have been so largely performed. In both cases it is seen that the characteristic polyneuritis is by no means the only result of a deficiency of Vitamin B in the food. Before the nerve symptoms become apparent the body may be seriously weakened in several other ways and rendered much more susceptible to the inroads of infectious disease; hence, the importance of such selection of food as shall result in an intake of Vitamin B, much more liberal than the minimum which suffices for the support of growth and the prevention of beriberi.

VITAMIN C

Theobald Smith (1895) found that guinea-pigs kept upon a diet of oats developed a hemorrhagic disease. Later when Eijkmann, as above noted, had shown that a condition corresponding to beriberi could be induced in fowls by faulty diet, Holst and Frölich (1912, 1913) experimented with guinea-pigs and found that a diet of grain or bread brought about in these animals a condition corresponding in its essentials with human scurvy, and their own and subsequent experiments, notably those of Cohen and Mendel (1918) and Hess and Unger (1918, 1918a, 1918c, 1919), made it certain that scurvy is due to the lack of an "antiscorbutic," as beriberi is due to the lack of an "antineuritic," vitamin.

The species whose susceptibility to scurvy is best known, and from whom our knowledge of the antiscorbutic vitamin, now commonly called Vitamin C, is chiefly derived, are the guinea-pig, monkey, and man. But Vitamin C evidently has functions in normal nutrition as well as in the prevention of scurvy, and is a dietary asset even to a species which shows no scurvy symptoms, such as the rat. Harden and Zilva (1918c), and almost simultaneously Drummond (1919), tried the addition of Vitamin C, in the form of orange juice, to the diet of rats and found this to result in better growth and vigor. This is of special in-

terest in connection with the clinical observations of Hess, who found many cases of subacute or latent scurvy among infants. These cases do not show pronounced scurvy symptoms but are irritable, lacking in stamina, and more or less retarded in growth. Better growth, higher stamina, and better general health and disposition are induced by the feeding of Vitamin C in the form of orange or tomato juice or other suitable antiscorbutic food.

As Hess explains fully in his recent excellent monograph (*Scurvy, Past and Present*), he believes that a large proportion of infants and young children receive less than an optimum amount of Vitamin C, and that even among adults with their more varied dietary so many are near the borderline of adequacy in this respect that "a failure of the potato crop is followed by scurvy in the spring." Still more recently Watkins-Pitchford in his introduction to Delf's report of her investigations in South Africa* writes:

> The health of all the inhabitants of a country which is liable to prolonged droughts is exposed to periodical menace from shortage of fresh vegetables and fruit. This menace is not so much that of declared and recognizable scurvy as of the "prescorbutic" or latent scurvy condition: for in this condition the resistance to infective disease, whether originating in the individual or affecting the whole community in the form of an epidemic, is reduced. . . . . It is also worthy of note that a diet which is theoretically only just sufficiently antiscorbutic to prevent manifest scurvy will, in practice, fail in its object. This observation points to the necessity for always providing a liberal margin above the bare minimum of the requirements of the body in Vitamin C.

Not only does the somewhat restricted distribution of Vitamin C among foods raise the question whether the so-called normal dietaries will always contain it in optimum amounts; another reason for careful provision of a liberal allowance is to be found in the fact that much of what is contained in the food may be destroyed in the cooking. Delf in the report above mentioned writes:

> There is increasing reason to believe that, in institutions where the ration of antiscorbutic food is limited to cooked vegetables, a quantity which is theoretically about sufficient for the maintenance of health if consumed raw or lightly cooked, becomes quite inadequate after prolonged boiling, stewing or frying. For example, 82 men were affected with scurvy in a prison camp in Scotland in the spring of 1917. "At the time potatoes were scarce, but the ration contained a fair proportion of fresh meat and 2 oz. of swedes were available daily. . . . The cause of the outbreak was investigated by Professor Hill, who discovered that the meat was always served as a stew, the vegetables were added, and the whole cooked for about five hours." An outbreak of scurvy in a hospital in Vienna has recently been traced to the custom of twice cooking the vegetables provided, at a time when the daily allowance was necessarily somewhat limited. The evil effect on fresh food of prolonged heating or simmering has also been observed from time to time in certain South African mine compounds.

Delf found that in ordinary cooking of cabbage about 93 per cent of its antiscorbutic vitamin was destroyed; and Eddy has recently confirmed this, finding a destruction of 90 to 95 per cent of the Vitamin C, whether the cabbage be cooked in an open kettle or in a pressure cooker.

LaMer, Campbell and Sherman (1922) carried out an extended study of the effect of heating at different temperatures and for different lengths of time upon Vitamin C as contained in tomato juice. Among other results it was found that on boiling the juice at its natural acidity for an hour, one-half of the Vitamin C was destroyed, while four hours at boiling temperature destroyed about 68 per cent. In experiments in which the tomato juice was heated at 60°, 80° and 100° C. for one hour and for four hours, it was found that the percentage of Vitamin C destroyed always increased both with the time and with the temperature of heating. Neither the time nor the temperature of heating can safely be disregarded if serious losses are to be avoided, and it cannot properly be said that either the time or the temperature is the more important, for their relative importance will depend upon conditions. The studies referred to seem to warrant the general view that for short periods

*Studies in experimental scurvy, with special reference to the antiscorbutic properties of some South African foodstuffs. Publication No. XIV of the South African Institute for Medical Research, Johannesburg, 1921. By E. Marion Delf.

of time (one hour or less) the rate of destruction is relatively rapid, and therefore in such cases the length of time of heating is likely to be a more serious factor than the temperature, while for longer periods the effect of temperature assumes relatively greater prominence in comparison to time than it does in shorter periods. Both time and temperature of heating should be held to the lowest practicable minimum if the antiscorbutic vitamin is to be conserved to the best advantage.

The best conservation of Vitamin C also demands the avoidance of heating under oxidizing conditions and of the use of soda or other alkali, since this vitamin is readily destroyed by oxidation, and more readily in neutral or alkaline than in acid media.

In view of the importance of so many factors it is unsafe to attempt a categorical answer to such general questions as whether or not canned foods contain enough Vitamin C. Canned meat and canned beans contain practically no Vitamin C, while canned tomato is one of our best sources—partly because the tomato is initially rich in the vitamin, partly because its acidity acts both to protect the vitamin from heat destruction and to reduce the heat treatment needed in the canning process. The fact that Hess (1921) and also Hume (1921a) have found the antiscorbutic property to be well preserved in sweetened condensed milk is evidence that Vitamin C in a nearly neutral medium can be preserved through a moderate heat treatment and subsequent storage, when both heating and exposure to air are reduced to a minimum by evaporating under vacuum and immediately placing the product in airtight containers.

Thus the antiscorbutic value of a preserved food will depend upon many factors, such as the amount of Vitamin C which the food contains at the beginning, its hydrogen ion concentration, the time and temperature of heating to which it is subjected, the extent to which, and the temperature at which it is exposed to air or other oxidizing agents, probably also the presence or absence of substances which may catalyze the oxidation or heat destruction of the vitamin, and very possibly other factors not yet recognized.

VITAMIN A*

The existence of a fat-soluble substance or substances essential to normal nutrition was established independently by McCollum and Davis (1913) and by Osborne and Mendel (1913a, 1914) through experiments in which it was found that animals, on food mixtures alike in all other respects, would grow or not according to whether the fat in the food mixture was butter-fat or lard.

At the same time Osborne and Mendel (1914) pointed out that animals suffering from lack of this fat-soluble substance became subject to an eye disease which has since been widely discussed in connection with this dietary deficiency under the names of ophthalmia, xerophthalmia, keratomalacia, and conjunctivitis.

In the case of each of the recognized vitamins, the characterization of the substance depends as yet chiefly upon the physiological effects observed to follow the use of a diet deficient with respect to the vitamin in question. When a diet lacking fat-soluble vitamin, but adequate in other respects, is given to a young growing rat, growth continues for a longer or shorter time according to the opportunity which the animal has previously had to lay up a store of this vitamin in his body. After cessation of growth the animal may or may not remain at stationary weight for a time, then there usually sets in a loss of weight and a condition of general decline accompanied by increased susceptibility to bacterial infection. This lowered resistance results in a large proportion of the ex-

*This section and the one which follows are largely taken from the paper on The Fat-Soluble Vitamin prepared by H. C. Sherman for the General Meeting of the American Chemical Society, Pittsburgh, September, 1922.

perimental animals developing the characteristic disease of the eye.

These observations have been made chiefly upon the rat, not, as is sometimes supposed, because the rat is particularly susceptible to a lack of the fat-soluble vitamin, but rather because at the time of the discovery of the vitamin the rat had already become the favored animal for laboratory feeding experiments. There is no reason to doubt, and ample reason to believe, that the rat is representative of mammals generally in his need for the fat-soluble vitamin and in the effects which he shows as the results of its absence or inadequacy. That results such as those described for the rat follow the lack of fat-soluble vitamin in the food, has been shown experimentally for species varying as widely as the fowl, the rabbit, the dog, and the pig, and there is much clinical evidence showing that the same is true of the human species. For instance, the eye disease observed by Bloch (1917, 1921) as one phase of the malnutrition of Danish children was quite definitely related to deficiency of fat-soluble vitamin in the diet, since it was cured by feeding with whole milk or butter, or by administration of cod liver oil.

We shall therefore continue to draw experimental evidence regarding the physiological significance of the fat-soluble vitamin chiefly from work with the rat; but we have ample reason to believe that the same or similar effects will result in man also from the use of diets unduly poor in this vitamin.

It has been repeatedly found that diet poor in fat-soluble vitamin leads to weakness in other respects as well as to increased susceptibility to eye disease. Osborne and Mendel (1921a) report diarrhea and diminished appetite as frequently resulting from food poor in fat-soluble vitamin; and they have definitely correlated this deficiency with the occurrence of phosphatic renal calculi (bladder stones) among their experimental animals. McCollum and Davis (1913, 1914) and also Drummond (1919a, 1919b) report increased susceptibility to infections including lung disease among individuals whose diet is poor in this vitamin. Steenbock, Sell and Buell (1921) confirm this and emphasize also the susceptibility to bronchial troubles and abnormalities of the skin. Evans and Bishop (1922) find that diets containing enough fat-soluble vitamin for growth and protection from eye disease may still require enrichment with this vitamin in order to enable the animal to meet the added strain of reproduction.

With so much direct experimental evidence of wide-spread weakening of the body when the intake of fat-soluble vitamin is low, it is not surprising that many authorities find reason to correlate low intake of this vitamin with increased susceptibiltiy to such diverse diseases as rickets, pellagra, and tuberculosis. For lack of space, these latter problems cannot be adequately discussed here; but mention must be made of the fact that Hart, Steenbock and Hoppert (1921) have pointed out a new relationship of vitamin value of food to the calcium metabolism, and McCollum and his associates have recently announced their conviction that the vitamin concerned with prevention of rickets is different from that which prevents the eye disease. This would mean that the functions which hitherto have been attributed to Vitamin A would now be divided between the "antiophthalmic" and the "antirrhachitic" vitamins. Both are fat-soluble, and for the purposes of this paper we may continue to use the term fat-soluble vitamin which covers them both and any possible further subdivisions of the original Vitamin A which may conceivably come to light as the result of further research.

While space permits no real discussion here of the relation of diet to susceptibility to tuberculosis and pellagra or of the question as to whether an infection is necessarily involved in the latter disease, it seems important to note at this point what McCollum has so fre-

quently emphasized, that dietaries poor in Vitamin A are unfortunately common throughout the country and that people weakened by such diet are probably more readily attacked by the disease to which they are chiefly exposed in the locality in which they live, whether this be tuberculosis, pellagra, or some other disease.

Certain it is that the foods found by long experience to be especially beneficial in feeding for the prevention and cure of tuberculosis are milk and eggs, both of which are rich in fat-soluble vitamin. There also seems to be, in the otherwise somewhat conflicting conclusions reached by different students of pellagra, a fair agreement on the fact that inadequate milk supply is closely correlated with occurrence of pellagra in the regions in which it is prevalent, and that liberal use of milk in the diet is especially efficient in the prevention and cure of the disease.

A liberal allowance of fat-soluble vitamin certainly tends toward a higher degree of health and vigor; and when more is consumed than is needed at the time, the body has power to store the surplus and hold it available for future use. This has been found to be strikingly true both of young animals and of adults.

An animal taken at weaning time from a family whose diet is relatively poor in this vitamin and placed upon a diet which lacks it, but is good in all other respects, will very soon cease to grow; whereas one of the same age but from a family whose diet furnished liberal amounts of fat-soluble vitamin will, upon the same experimental diet, continue to grow by virtue of his stored vitamin, often doubling and sometimes trebling his weight. Similarly the length of time that an adult can survive on a diet lacking the fat-soluble vitamin has been found to depend upon the opportunity which he has had to store the vitamin in his body from surplus received in his previous food.

In experiments now approaching completion in the laboratory of food chemistry at Columbia University it has been found that a mixture of two-thirds whole wheat and one-third skimmed milk powder supplies enough fat-soluble vitamin to maintain growth at practically the normal average rate and apparent good general health in the rat, and that an increase of the fat-soluble vitamin in the diet by the use of whole milk powder instead of skimmed results in a distinctly higher degree of health and vigor as shown in longer life and much better success in bearing and rearing young. That this is due to the increased intake of fat-soluble vitamin and not of the fat itself is shown by parallel experiments in which the same differences were found to result from diets which differed only in that one contained lard or cocoanut oil while the other contained butterfat.

Recent experiments emphasize strongly the fact that fat-soluble vitamin is needed by adults as well as during growth. That adults appear less dependent upon the fat-soluble vitamin content of their food is attributable in part to the fact that they have passed the stage of development at which the effect of a deficiency becomes apparent quickly, and in part to the fact that when the adult has grown up on a diet rich in this vitamin he will have acquired a sufficient store to carry him over subsequent periods of inadequate intake, provided these are not too prolonged.

How the fat-soluble vitamin which the body has stored is distributed among the different organs and tissues has not yet been determined quantitatively. Weight for weight liver contains more than muscle or adipose tissue; but the concentration of fat-soluble vitamin in liver, in muscle, or in adipose tissue will depend primarily upon the concentration of this vitamin in the food which the animal had received. Thus the vitamin value of meat of the same kind cannot be foretold even for closely related animals of the same species, except as we know also the food which they have received and the rate at which they have been fattened.

The adipose tissue of the pig usually contains little fat-soluble vitamin—not necessarily because he is a pig but primarily because he has fattened rapidly on food relatively poor in Vitamin A. And of what little vitamin the pig fat contains, most, if not practically all, appears to be destroyed by the heating and exposure to oxidation which are involved in the processes of rendering and clarifying the lard (Drummond, Golding, Zilva, and Coward, 1920). Osborne and Mendel (1921) have repeatedly and invariably found lard to be devoid of fat-soluble vitamin, while Daniels and Loughlin (1920) report the finding of indications of significant amounts. Whether lard actually contains significant amounts of this vitamin in some instances, or whether the rats used by Daniels and Loughlin were able to thrive on their experimental diets because of vitamin which they had previously stored must for the present be regarded as an open question.

It is certain, however, that neither lard nor any other adipose tissue or muscle fat can safely be depended upon as an adequate source of the fat-soluble vitamin. So far as it goes, liver is a better source than ordinary meats; but a much more important source than either is to be found in milk and eggs. In view of the great importance of abundant supplies of fat-soluble vitamin for the support of tissue formation, it is natural that the maternal organism should transfer rich stores of this substance to the milk or the egg whose function in nature is to furnish tissue material and growth-promoting substances to the young. Thus the natural corollary of the great importance of fat-soluble vitamin in life processes is that the materials especially evolved for the nourishment of the young—milk in mammals and eggs in birds—are relatively rich in this vitamin. And since cattle have been successfully bred for milk, and fowls for egg production, it naturally follows that milk and eggs are the most valuable, and milk usually also the most economical of the sources of this vitamin in the human dietary.

VITAMINS IN THE DIETARY

In the present state of knowledge we consider it highly important to know as much as possible about the occurrence of vitamins in foods, to take account of them in considerations of food values and the problems of food supply, and to see that individual and family dietaries provide the vitamins in quantities distinctly more liberal than the minimum allowances which would suffice for the prevention of deficiency diseases.

Tables summarizing the occurence of vitamins in foods are now readily available. (See for example: *Laboratory Handbook for Dietetics*, Revised Edition, by M. S. Rose; *The Vitamin Manual*, by W. H. Eddy; the American Chemical Society monograph on *The Vitamins*, by H. C. Sherman and S. L. Smith; the vitamin poster prepared by the American Medical Association and reproduced in miniature in the *Journal of the A. M. A.*, Vol. 78, page 1407).

Without entering into details it can safely be said that milk in its various forms is the most important and economical source of Vitamin A, while supplying also liberal amounts of Vitamin B and significant quantities of Vitamin C, and that the fruits and vegetables while varying widely among themselves are as a group a very important source of Vitamins B and C.

It is very important that there be included in every individual dietary and every community food supply sufficient amounts of milk, fruits and vegetables to ensure adequate intake of vitamins and mineral elements together with protein of assured high nutritive efficiency. This should mean fruits and vegetables in quantities liberal according to current food habits, and of milk at least one pint per day per capita of population, preferably a quart of milk per day for every child and at least a pint for every adult.

This milk may be in any of the now standard forms—raw, pasteurized, canned or dried. There is no evidence of any measurable effect upon Vitamin A or B when milk is properly pasteurized, condensed or dried. Under what conditions and to what extent, if any, these processes influence the Vitamin C content, is a matter of active investigation at the present time. In a previous report this Committee has recommended the use of some antiscorbutic food in the diet of all artificially fed infants; and in the present case the supply of Vitamin C is amply safeguarded by the recommendation regarding fruits and vegetables.

The fruits and vegetables will naturally vary with locality and season. To ensure suitable prominence of these in the food supply, it is suggested that about one-fifth of the total expenditure for food be devoted to the purchase of vegetables and fruit.

With milk, vegetables and fruit amply provided, the rest of the fuel value of the diet can then be supplied in the form of almost any wholesome food or foods desired.

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THE STATISTICAL EVALUATION OF PUBLIC HEALTH ACTIVITIES*

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IT must be apparent to any thoughtful student of public affairs and economics that a fundamental change is taking place in the attitude of the public mind toward altruistic social activities of all sorts. The rapid development during the last quarter century of knowledge, on the one hand, and theories on the other hand, of social betterment, in the various subdivisions of the fields of medicine, sociology, economics, etc., has had the tendency to hypnotize the public. Instinctively most right-minded people like the idea of helping those who need help. They have been shown a plethora of ways in which this might be done. The cost has frequently not been counted. Indeed most of the not particularly thoughtful of our fellow citizens have tended to overlook the fact that activities intrinsically good, or supposed to be, cost anything at all. Unfortunately, however, they do. Every time a new social activity is put into operation, the public has to pay for it, either directly in the form of so-called charitable giving, or indirectly in the form of taxation.

At the present time the public is interested in and scrutinizing the cost of the altruistic activities of society as it never did before. This attitude of mind seems to me to be a healthy one, and likely to increase in extent and force. When one pays to municipality, state, and nation a distinctly noticeable fraction of his income for the privilege of being allowed to continue merely to live in that city, state, and nation, he is rightfully concerned in examining with care the question of what he gets for his money.

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Just here is where arises the *necessity* of evaluating public-health activities. The person interested in and engaged in these activities cannot for a moment afford to neglect this phase of his subject, or to assume any sort of superior attitude that it is none of the public's business to inquire whether his work is worth what it costs. On the contrary he needs, if I judge the signs at all correctly, as never before to search his own business in the most critical objective way, to the end that when called up to the court of public and scientific opinion, as he will be with increasing frequency, he may be able to present his case clearly, and with intellectual cleanness.

Besides this somewhat practical reason for evaluating quantitatively the results of public-health work, there is also an intellectual and moral one, fundamentally more important. This reason may be put bluntly in this way: no such high-minded men as public-health officials are, care to engage in a dishonest business. Is our current public-health work always and everywhere honest,—I mean *really,* which is to say scientifically, honest? Do the measures we practice *really* prevent disease? Or would the course of morbific events be much the same if some of the things we do were not done? A striking illustration of my point, known to all, lies in the experience of the Providence Health Department with the fumigation of rooms with ill-smelling vapors after contagious diseases. Our revered colleague, Dr. Chapin, than whom a more intellectually honest man never lived, decided to evaluate the effect of fumigation, and found it to be just exactly zero. Another example of the same point will do no harm. Dr. Levy and Dr. Freeman in Richmond could not materially reduce the summer mortality of infants in that fair city by the studious and strenuous application of all the orthodox methods of reducing infant mortality. So they instituted a campaign for the simple and homely practice of boiling diapers. It was promptly followed by a substantial drop in infant mortality. This well-known case is usually cited as an example of the intellectual genius of these workers. It seems to me to constitute an equally impressive monument to their intellectual honesty, and to furnish a splendid example of the experimental evaluation of public-health procedures, not, be it carefully noted, solely of the procedure of boiling diapers, but also, and of more consequence, of the *other* procedures.

A third reason for thought about, and frequent practice of the statistical evaluation of the results of public-health activities is that it furnishes one of the most potent means of increasing and extending knowledge that we have in this field. No one supposes that we have attained complete or sufficient knowledge of the laws of hygiene. Probably some of what is now practiced in public-health work will some time be discarded because we shall know how better to accomplish the desired result. One of the principal methods by which this result will be attained will certainly be the statistical, and chiefly because, when properly handled, it makes possible the *measurement* of the effectiveness of different procedures.

If it be granted, as I think it must, that particular attention on the part of public-health officials, to the honest, strictly scientific evaluation of the results of their activities is imperative, we may turn to the next question. Along what lines shall this evaluation proceed? Broadly speaking, attempts in this direction have followed two lines: first, the evaluation of public-health activities in terms of mortality, and second, the evaluation in financial terms. Neither of these lines is entirely fair to the case, and so far both are unsatisfactory.

It is not fair to measure the effectiveness of public-health work entirely in terms of mortality, because much of its effectiveness in actual fact has nothing to do with mortality, but with morbidity. This fact shows itself in every-day language. We have boards of *health,* not boards of mortality, and

quite rightly so. Some of the human ailments against which public-health work directs its most effective work are diseases which at the worst are not particularly fatal. An example is uncinariasis —hookworm disease. It would be folly to attempt to measure the social worth of the campaign against this distressing ailment in terms of mortality. What this work accomplishes is not primarily a reduction in mortality, but a positive increase in the sum total of human happiness and well-being, individual, social and economic. The same considerations apply to many other lines of public-health work, indeed to most of them. The most important causes of *death,* taken by and large, are not the ones against which hygiene and sanitation are, in the present state of knowledge and of the organization of society, particularly effective. But this fact should in nowise be taken to mean that public-health efforts have no great value.

The economic evaluation of public-health activities, which attempts to set up ledger accounts for each line of work, and show on one side the cost in dollars, and on the other side the supposed value of the results in dollars, seems to me again fundamentally unfair, and for essentially the same reason I have set forth above. Much, if not most, of the most valuable accomplishments of public-health work are, in the very nature of the case, not measurable or even expressible in dollars and cents. What is it worth to me in money that my children will not have diphtheria or smallpox? Who can say, or if he does attempt to say, who will attach any significance to his figures? Again, does any one find any particular real meaning in the various estimates we have had, figured out with the utmost refinements of mathematics, of the monetary loss due to tuberculosis? Lately it has been estimated[1] that "this loss means an annual charge in excess of five hundred million dollars from the curtailed longevity of individuals because of tuberculosis." This sounds interesting and impressive, because the figure is larger than any of which the human mind is capable of forming any *real* conception. But it intrigues me to note that an eminent authority in quite another field estimates[2] in the same year that the annual loss to this country from the crop depredations of rats, mice, and other rodents was the same figure, $500,000,000. I do not wish in the least to criticize either estimate, both of which I am sure from some personal experience in both fields, have been made with the highest degree of accuracy attainable in our present state of knowledge, and of greater importance, attainable *in the nature of the respective cases.* But it does seem to me that most sensible persons will somehow feel that, if the true and complete losses in the two cases were really measurable, the result would *not* be to show that tuberculosis and the destruction of crops by rats are disasters of exactly the same magnitude, though this is the conclusion indicated when the economic mode of evaluation of tuberculosis is followed.

I do not mean to imply in what I have said that either the mortality or the economic modes of evaluation of public-health activities should be abandoned. Quite on the contrary both have a legitimate place and function in the matter. All I want to emphasize is that both, at the very best, tell an incomplete story, which may be quite misleading because it is incomplete. There is needed something to supplement these two. What it is, I think is apparent to all. Before we can, with anything approaching real justice and completeness, evaluate statistically the results of public-health work we must have a system of registering the statistics of *morbidity,* vastly more complete and extensive than anything we have so far had in this field. The significance of evaluations of public-health work in terms of morbidity has nowhere

been more strikingly shown than in the Reports of the International Health Board. Figures 11 and 12, in their recently issued Eighth Annual Report, showing the results of anti-malaria measures in Crossett and Hamburg, Arkansas, measured in terms of number of physicians' calls for malaria, are splendid examples. My urgent plea is that this Section and this Association as a whole use every power at its command to hasten the coming of the day of adequate morbidity statistics. Splendid beginnings in this direction have been made by Dr. Dublin and Dr. Frankel working with the magnificent resources and backing of a great insurance company, and by our chairman, Mr. Sydenstricker, and his staff. But some one must make the same determined and persistent fight in this country for official morbidity statistics that Cressy L. Wilbur did for mortality statistics. Then we shall have them.

If we are agreed that we must give due attention to the statistical evaluation of our work, and that this must take account of morbidity as well as mortality and economic results, we may ask another question: What shall be our method of evaluation? Broadly, there can be only one answer to this question. We must, in the nature of the case, resort to the statistical method, either alone or combined with the experimental method. More specifically, it needs to be brought emphatically to the attention of the vital statistician and public-health officer that in the last quarter of a century the theory of statistics has advanced by leaps and bounds. The day has passed when the mere tabulation of crude statistics, and the drawing of unchecked and uncriticised conclusions from these tabulations will pass the court of scientific judgment. No statistical conclusion is to-day accepted by competent workers in the field, unless it is fortified by a determination of the probable errors involved. A decline in the death-rate may be absolutely large, but wholly devoid of significance, because subject to a large error of random sampling.

This is only another way of saying that until we are sure that the random fluctuations of chance might not alone have determined the value of a phenomenon which we are studying, it is idle to expect scientifically intelligent persons to believe that the value observed is due to the efforts of the health officer, to mutations in bacteria, or what not.

In the space of a fifteen-minute paper it is obviously impossible to go into the details of modern statistical technique. One can only point out that there are available now adequate text-books of statistical theory, such as those of Yule, and of Arne Fisher, and that courses in the subject are now given at our schools of hygiene and public health. One may hope that as time goes on a higher and more critical standard than now prevails will become the rule instead of the exception in the statistical operations and deductions of public-health work.

The statistical method as a means of acquiring knowledge is one of the most powerful tools at our command. At the same time it is one of the most dangerous. Every one feels entirely competent, whether he has had any special training in the recondite field of the calculus of statistics or not, to draw conclusions from figures. The result is really, though not generally recognized so to be, just as bad as would be the case if wholly untrained persons felt free to draw conclusions in the most advanced fields of physical or organic chemistry.

The statistical pitfalls most commonly overlooked in attempting to evaluate the results of public-health work are the following. More might be instanced, but these are the outstanding and crying sources of trouble.

1. It is forgotten, or deliberately disregarded, that a death-rate or a morbidity rate for a community which has not been

corrected for, or as is said technically, made specific for the age, race and sex distribution of the population of the community, may be most misleading, and lead to egregious errors.

2. Differences or trends in death-rates or morbidity rates, on the basis of either time or space, have no scientific validity or meaning till the probable errors of the differences or trends have been measured, either exactly, or at least approximately.

3. It is overlooked or forgotten that *post hoc* does not necessarily mean *propter hoc*. The human mind is prone to believe, if event B comes *after* event A, that A was the cause of B, especially when as in public-health work A was undertaken with the best of intentions, carried through with care and almost religious fervor for the purpose and in the hope that it would cause B. A great many people confuse moral convictions with physical reality. In consequence, for example, some persons are apt to get very angry if one questions in the most objective and scientific spirit, what are the causes of the decline in the tuberculosis death-rate. They take the ground apparently that because their *efforts* to reduce this mortality were sincere and honest and in the highest degree noble, therefore the decline has been in actual fact *caused* by the efforts, and that to question this purely scientific matter is to question and impugn both their motives and their efficiency. As a matter of objective scientific fact, extremely little is known about why the mortality from tuberculosis has declined.

Many examples might be given to show the sad results of confusing *post hoc* with *propter hoc* in statistical deductions in public-health work, but in the time available I can only mention two. We hear and read a great deal about the effect of "the degrading influence of poverty" upon death-rates, especially infant death-rates. Leaving aside the larger social question as to whether there is ever anything "degrading" about poverty *per se*, we may well ask about what the evidence is that poverty, in actually existing rather than hypothetical populations, increases mortality. The evidence usually given is simply that in some populations the death-rate among poor people is notably higher than among well-to-do or rich people. This is the evidence given by Hersch[3] in his recent study of the matter in Paris. But this is truly *post hoc ergo propter hoc* reasoning. It quite overlooks the fact that the rich and the poor differ statistically in any population in respect to a number of other conditions besides poverty. Until one is sure that he has adequately measured and allowed for the effect of these other differences upon the rate of mortality he cannot safely conclude that poverty is the cause of his observed differences in mortality. The weakness of the case I have cited was almost immediately shown by Stevenson,[4] who came forward with similar statistics to those of Hersch, and showed that London exhibited no such picture at all as that presented in the crude figures for Paris. As a matter of fact, both of these papers are on the same weak footing methodologically. They consist merely of the setting of mortality figures against *one other variable only*, and inferring a causal relation from parallelism in variation. This is a scientifically dangerous pastime. The only careful and thorough study of the correlation between poverty and rate of infant mortality that has yet been made by modern statistical methods, that of Greenwood and Brown,[5] shows that when the birth-rate and the artificial feeding rate are held constant, differences in the infant death-rate are not sufficiently influenced or determined by differences in the poverty rate to lead to a net correlation coefficient significantly different from zero.

Another example to the same point may be mentioned. It is a generally held conclusion of the older vital statisticians

that there is a high positive correlation between rate of mortality and density of population. A great deal more exact work needs to be done than has been upon this extremely complicated problem, but in the meantime it may be pointed out that in a series of extensive studies, by the method of partial correlation, which have been carried out in my laboratory and will in the course of time be published, it has been found that, within the range of population densities represented in large American cities, there is practically no correlation whatever between density of population and the death-rate from all causes or from tuberculosis, when other variable conditions significantly affecting the populations are held constant. Again the simple statistical parallelism between mortality and one other variable, to the neglect of all others, has apparently led the vital statistician of the old school into a conclusion at least partly erroneous.

4. All this leads me to a fourth, and major, pitfall in the statistical evaluation of public-health activities. This is a corollary to the one we have just been discussing. It is that in all statistical work the probability of drawing conclusions which are in part or wholly wrong is generally inversely proportional to the number of variables taken into account in the computations and reasoning. Such complicated natural phenomena as the rate of mortality are not usually solely determined by a single cause. A number of variables affect the result. One of the greatest advances that has ever been made in the calculus of statistics was the discovery of the method of partial or net correlation. This method enables us to take account of more than two associated variables together. I cannot do better than quote what I have already said regarding the significance of this method in science.[6]

> The essence of the experimental method, as practiced in the laboratory, and in theory, is that, of the multitude of variables conditioning a phenomenon, as many as possible are, by appropriate methods, held constant while one variable (or at most a very few selected variables) is allowed to vary and the results are noted. One may then deduce the relative significance of the selected variable in determining the phenomenon under observation. Now we frequently hear in scientific discussions about the experiments that Nature makes. Actually the true conditions of an experiment are rarely if ever realized in the course of natural events. It is just because Nature permits manifold and haphazard changes in all variables at the same time that recourse must be had to the method of experimental control in the laboratory. What is needed in order to interpret the results, in the experimental sense, and determine the meaning of the manifold and ceaseless changes and variations in the flow of naturally determined events, is some method of picking out of the manifold some selected constant conditions of a series of variables, and then measuring the extent and character of the variations in a single selected variable, whose true relative influence upon the phenomenon it is desired to know, while all these other variables are held constant. If this can be done we shall have realized all the epistemological advantages of the experimental method as practiced in the laboratory, and have freed ourselves at the same time from the limitations which in so many cases inhere in the material itself and make the laboratory type of experimental inquiry impossible. In other words, we shall have let Nature perform the experiment, in the sense of determining the phenomena, in her own way, while we evaluate the results in critically analytical terms of precisely the same sort and meaning as those in which we evaluate the results of a laboratory experiment.
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> Now exactly this epistemological boon is actually afforded in the method of partial or net correlation, if properly handled. This analytically simple, if geometrically complex, calculus enables one, out of a manifold complex of variables operating in an entirely uncontrolled and natural manner, to determine the variation of any selected single variable, or the correlation of any selected pair for constant conditions or values of the other variables in the complex.

May I close with an illustration, which may serve as a warning of the dangers of the statistical method? In 1881, before the diphtheria bacillus had been discovered, there appeared in one of the leading medical journals of Germany, by an author[7] of standing, a paper apparently proving, or at least making apparently highly probable the conclusion that the eating of potatoes was the cause of diphtheria! It was shown, by conven-

tional statistical reasoning, that the disease diphtheria first appeared in Europe near the close of the sixteenth century; that it appeared *after* potatoes were introduced as an article of diet; that the disease had increased concomitantly with, and at about the same rate as the increase in the consumption of potatoes as food; that the most severe epidemics of diphtheria occurred at the time of the planting and the harvesting of potatoes; children from two to three years of age were particularly attacked because they played with the potatoes at the time of sowing and harvesting, while the older children were in schools; in one region, Schmalkalden, diphtheria was rarer than in another, Malstatt-Burbach, otherwise similar, because in the former place potatoes were bought in small quantities and immediately consumed, while in the latter place large quantities were laid in, and the people came more often in contact with spoiled potatoes.

Now the point I wish to make about this tale, which seems so weird and ridiculous, now that we *know* what causes diphtheria, is that the statistical reasoning in the paper cited is every bit as good and as cogent as at least much of the statistical work in the field of public health in this country at this present time. We may be, and I fear too often actually are, making just as egregious spectacles of ourselves in our statistical discussions of tuberculosis, infant mortality, etc., as was the gentleman who proved (?) that potatoes cause diphtheria. I hope that the moral of this true story is plain and will sink deep.

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JUVENILE SUICIDES IN PRUSSIA

According to statistics compiled by Frederick L. Hoffman, L.L.D., Consulting Statistician of the Prudential Insurance Company, the rate of juvenile suicides as a per cent of the suicides of all ages was 0.83 for 1919 and 0.93 for 1920. Since the average for 1914-1918 was 1.22 it would seem that there has been no such perceptible increase in the frequency of the suicides of children as to warrant the newspaper statements that there are on an average 16 such suicides a week. The following table gives statistics of all suicides in Prussia from 1909 to 1920 inclusive:

Year	Suicides at all ages			Suicides under 15 years of age			Percentage of juvenile suicide of total suicides		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1909	6,466	1,956	8,422	62	12	74	0.95	0.61	0.88
1910	6,164	2,015	8,179	70	25	95	1.11	1.24	1.16
1911	6,394	2,028	8,422	71	16	87	1.11	0.79	1.03
1912	6,604	2,119	8,723	96	16	112	1.45	0.76	1.28
1913	6,831	2,383	9,214	76	20	96	1.11	0.84	1.04
1909–1913	32,459	10,501	42,960	375	89	464	1.16	0.85	1.08
1914	6,477	2,293	8,770	56	14	70	0.86	0.61	0.80
1915	4,554	2,222	6,776	73	20	93	1.60	0.90	1.37
1916	4,397	2,507	6,904	70	24	94	1.59	0.96	1.36
1917	4,021	2,405	6,426	64	13	77	1.59	0.54	1.20
1918	3,720	2,400	6,120	72	20	92	1.94	0.83	1.50
1914–1918	23,169	11,827	34,996	335	91	426	1.45	0.77	1.22
1919	4,121	2,663	6,784	48	8	56	1.16	0.30	0.83
1920	5,145	2,706	7,851	57	16	73	1.11	0.60	0.93

THE COORDINATION OF PUBLIC AND PRIVATE AGENCIES IN THE CONDUCT OF A COMPLETELY GENERALIZED PUBLIC HEALTH NURSING SERVICE

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Read before the Provisional Section on Public Health Nursing of the American Public Health Association, at the Fifty-first Annual Meeting, Cleveland, October 17, 1922

IN ORDER that the generalized public-health work of Dayton may be better understood, I will give a brief résumé of the early history of the various organizations before the amalgamation took place.

In the fall of 1898 the Flower & Fruit Mission was organized for the purpose of taking flowers to patients in our local hospitals. The children of the various Sunday schools were asked to bring their pennies to help in this work and since that time, sixteen Sunday schools have contributed regularly towards the work.

The board of directors consisted of representatives from the sixteen churches, and from this directorate the officers were elected. As this organization was purely philanthropic, it was necessary to have a membership list from which to draw funds for the support of the work. There were two classes, honorary members paying $5.00 a year, and active members paying $1.00. All members were entitled to vote at the annual election of officers.

In 1903 the mission began supporting visiting nursing in the homes of the sick poor. One nurse was employed, and by 1911 there were four nurses on the staff. At this time the Tuberculosis Society also employed one nurse to instruct and nurse tuberculosis patients. Then in the fall of 1913, due to an epidemic of diphtheria the Department of Health employed four nurses to do quarantine work. After the epidemic these nurses were retained for quarantine and sanitary inspection. Briefly then, there were four visiting nurses, one tuberculosis nurse and four quarantine nurses working independently for the public health in Dayton.

In 1914 after the disastrous flood, it was advocated by these organizations, one city and two private, and the National Organization for Public Health Nursing, that it would be well to pool their interests and to unite these three sets of nurses into a single staff at one headquarters, under a single direction, for the following reasons: economy of money and time, efficiency and effect on the public.

The process of reorganization took the following course: The Flower and Fruit Mission was incorporated and became the Visiting Nurse Association. This organization and the Tuberculosis Society moved into the office of the Department of Welfare, of which the Division of Health is a part. This brought all nurses into a common office. The superintendent of the Visiting Nurse Association became director of the entire staff. The two philanthropic organizations retained their autonomy completely and their authority over their respective services. It became evident after a six weeks' trial that while this was a good plan, it still was not eliminating duplication of effort. While the nurses were going out of a common office, they were still following specialization and thus overlapping in their work. Therefore, it was decided to re-district the city, put one nurse in each district, that nurse to do all kinds of

public-health nursing. This plan was installed May 1, 1914. It necessitated some lecture work to prepare the nurses for generalized nursing, and this lecture course has been followed every winter with supplementary weekly conferences by the commissioner of health and superintendent of nurses.

We now come to the present year of 1922 which finds Dayton with a population of 160,000 served by twenty-seven public-health nurses—an average of 6,000 people to one nurse, which I believe is far greater than it should be, 3,000 being the consistent number.

The public-health work is being done under the name of The Visiting Nurse Association; this makes it possible to enter many homes where the families would resent what they consider "a city nurse." Also service fees can be collected from those able to pay and requiring bedside care. There has been no pooling of the budgets at any time, each organization paying its own expenses. The Division of Health supplies office room, light, heat, janitor and telephone service. It pays the salaries and carfare of ten nurses and furnishes all drugs and supplies to carry on the dispensary service, which is in charge of the city physicians, assisted by the nurses. The Visiting Nurse Association's budget provides for the superintendent of the organization, an assistant superintendent who has charge of detail office work, a field supervisor, twelve field nurses and their carfare, and outdoor uniforms of the entire staff of twenty-two nurses. The Tuberculosis Society is now the Montgomery County Public Health League and no longer has a nursing service. The League supplied the funds, however, so that we were able to employ a second colored nurse on our staff, as the population of 9,017 negroes could not be served by one nurse.

The city is divided into eighteen districts, with one nurse in each district. The various activities under our generalized system of nursing are bedside care, tuberculosis, infant welfare, prenatal, postnatal, quarantine instruction, school inspection where cases of contagious disease have occurred and Metropolitan Life Insurance Company service.

Our free clinics are for crippled children, venereal diseases, tuberculosis, general medicine and infant welfare, principally feeding. The Visiting Nurse Association now obtains its financial support from the Bureau of Community Service. In connection with our work, and also financed by the Community Service, is The Babies Pure Milk Fund, which provides free milk and sugar to babies and milk and eggs to tuberculosis patients who are indigent. The Visiting Nurse Association also administers the fund of the venereal clinic. This clinic has three physicians in attendance and the patients are expected to pay something for their treatments.

As I mentioned before, the autonomy of the organizations has not been changed. There is a directing board of the Visiting Nurse Association consisting of twenty-two members, who meet monthly. This board is self perpetuating. We no longer have a membership.

An advisory committee binds the various interests together. This committee meets upon call to decide change of policy or any other important matter concerning the organization as a whole. It is represented by three members of the Visiting Nurse Association, two from the Department of Welfare, two from the Montgomery County Public Health League and the local superintendent of the Metropolitan Life Insurance Co.

You no doubt are wondering how we account for twenty-seven public-health nurses. There are five nurses employed by the Board of Education, under the direction of the Division of Health, but not in the scheme of generalized nursing. Each year we hope that these nurses may become a part of our general work, but the difficulty has always been an agree-

ment with the Board of Education. These five nurses do the follow-up school work on eye, ear, nose and throat cases, and conduct to a small extent the classes for underweight children.

During the years of generalized public-health work in Dayton, there has been very little friction. There has been no question of unfair division of work, or of any self interest. The change has worked for the benefit of all alike and it has seemed to justify every reason for its adoption.

Because of the dissimilarity of records before the amalgamation took place, statistical evidence of success is rather hard to obtain. The Visiting Nurse Association shows a large gain and a far wider range of operation. It has also increased the volume and effectiveness of the Tuberculosis Society (now the Montgomery County Public Health League) and its ability to seek out unreported cases of tuberculosis. The gain to the Division of Health cannot be shown in figures, but contagious diseases grow less each year and the infant death-rate has dropped from 114.3 in 1912 to 74.7 in 1921. We are sure that this is due in some part to the public-health nurse teaching prevention of disease, and our rigid school inspection for contagious diseases.

We find this generalized public-health nursing eminently satisfactory. Not only is overlapping service prevented, but under this system, when the nurse goes into the home all matters pertaining to public health are of interest to her, and in turn she is able to render very much better service. And the nurse becomes the friend, advisor and confidant of the mother in the home and thus her field of usefulness is broadened.

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SOME MORTALITY STATISTICS OF SOUTH AMERICAN REPUBLICS

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Abstract of paper read before the Vital Statistics Section of the American Public Health Association at the Fifty-first Annual Meeting, Cleveland, October 18, 1922.

THE results of my South American investigations cover a wide range of medical and related questions, which hardly permit of being reduced to a state of brief generalizations. I was chiefly concerned with the question of tropical acclimatization, as regards the adaptability of white residents born in northern latitudes. My investigations included portions of Peru, Bolivia and Brazil. They extended over a period of actual traveling and residence of some five months in the northern portion of South America, much of it near to the equator. They included a careful analysis of a considerable amount of new morbidity and mortality data, especially tabulated for the purpose. The principal institutions considered were hospitals in Lima, Arequipa and Cuzco, Peru; La Paz, Cobija and Riberalta, Bolivia; and Porto Velho, Manaos and Para, Brazil. For some of these localities the data are of absorbing interest, as revealing new viewpoints regarding the effects of the so-called tropical climate on the health and well-being of both northern-born whites and natives or mixed-bloods, resident in the regions visited. While indicative in all cases of the prevalence of certain peculiar types of diseases, generally termed tropical afflictions, the con-

clusions, on the whole, favor the view that the effects of the so-called tropical climate are quite secondary to other and more important causes determining health and longevity in the regions under investigation. In brief, the results may be summarized as follows:

1. The actual or relative frequency of so-called tropical diseases is much less than was assumed to be the case.

2. The principal diseases which required special consideration, aside from malaria and hookworm infection, were espundia, uta, verruga peruviana, pinta and tropical ulcers, generally. The most important disease throughout practically the entire areas visited is malaria, which, though generally of a mild form, complicates practically all other affections, whether recognized or not.

3. The most important serious causes of illness are respiratory affections, whether tubercular or not, which, in all probability, cause the major portion of the mortality, which is a matter of record.

4. The so-called tropical climate, meaning tropical heat and its effect in some form or other, is, in my judgment, of decidedly secondary importance to tropical weather changes, from a fairly high average temperature during the day to a decidedly lower temperature during the night.

5. Bronchial affections and the pneumonias are practically of universal occurrence and though more often immediately fatal in the highlands, and particularly at Cuzco and La Paz, they are the principal causes of death even in the lowlands, where protection against the weather during the night is grossly neglected, where the house construction is opposed to health conservation and where medical attention is, in most cases, unavailable.

6. A factor of very considerable importance in this connection is the miserable nutrition of the native population, or the almost universal occurrence of malnutrition throughout every year of life.

7. The food of the natives consists mostly of bananas, rice, yucca, frozen potatoes and sun-dried beef, all of which is more or less wanting in nutritive qualities, useful in developing a high order of disease resistance.

8. In the highlands an attack of pneumonia is practically always fatal, particularly, in my judgment, because the treatment followed is based upon the teaching results gained in lower latitudes and not adapted to local requirements.

9. This conclusion applies particularly to whooping cough, which is the principal cause of death in the city of La Paz, where it forms 14.8 per cent of the mortality from all causes.

10. It is only in the larger cities that first-class medical aid is available, with the required supplementary institutional facilities. Surgery in Lima, Arequipa and La Paz is of as high an order of efficiency as in any part of the United States, but throughout the vast rural regions such medical service as is available is frequently wanting in modern training, and nearly always lacking in the necessary scientific laboratory aids, without which a perfect practice, in the tropics especially, is inconceivable.

11. Vital statistics are collected with reasonable accuracy in a number of important localities, but the diagnosis is frequently made by lay people, while even when made by medical attendants, it is of a very uncertain nature.

12. While many causes of death are diagnosed as pulmonary tuberculosis, there are reasons for questioning the actual occurrence of this disease to the extent indicated by the available statistics. It is rather my own conviction that many of the deaths are the result of non-tubercular respiratory affections, favored by weather exposure and malnutrition.

13. While the birth-rate is high and

large families are frequently met with, the mortality in infancy is far in excess of the prevailing rates in northern latitudes. This, in part, is to be attributed to malnutrition, in part to gross ignorance in matters of maternity care, but largely to reckless weather exposure, particularly in the highlands. Children are under-clad, as well as under-fed, and almost invariably neglected during the daytime, while inadequately cared for during the night.

14. As regards the probable prevalence of venereal diseases, qualified opinion is widely at variance. From such information as I have been able to secure, I am satisfied that in Peru and Bolivia venereal diseases are by no means as common as frequently assumed, while in northern Brazil, on account of the negro mixed-blood population, the disease is unquestionably almost universally diffused among this element. Verruga-peruviana is limited to a comparatively small area in the Andean regions of Peru, but its geographical distribution, which is of the first importance, has not been ascertained by any one of the several commissions of investigation which have been sent out from this country to investigate the subject.

15. Rheumatism, both acute and chronic, is exceedingly common. Its occurrence is strongly favored by weather and water exposure, especially in the case of the vast river regions, where the men are seldom dry during the daytime and almost invariably sleep in damp clothes during the night. The data accumulated during the investigation have not yet been analyzed with the required thoroughness as regards the particular forms of local tropical affections which receive qualified medical institutional treatment. Without instrumental aids opinion must necessarily be of doubtful value in the case of diseases which are rarely, if ever, met with outside of the regions visited. This applies particularly to espundia and uta, to verruga-peruviana and pinta, to amebic dysentery and various types of Leishamaniasis, tropical ulcers, filaria, yaws, granuloma-venereum, myiasis, leprosy, beriberi, etc.

16. As regards leprosy, I believe it may be said with reasonable assurance that the disease is very rare in Bolivia, but comparatively common in northern Brazil, and in some localities exceedingly so. The provision which is made for lepers is almost invariably far below the required standard for comfort and care, and the treatment is rarely adequate to the purpose.

17. In the extremely elevated regions of the Andean plateau the effects of altitude in particular cases are unquestionably very trying, but on the whole my own investigations and experience do not justify the conclusion that this factor is of really serious importance at elevations below 12,000 feet. Cancer and diabetes are of exceedingly rare occurrence among the native population. Cancer of the breast among native women is practically never met with, even in the large centers of population. Much the same conclusion, as far as it is possible to judge, applies to the occurrence of diabetes. Goitre occurs in certain particular localities, but it is not a very common affliction. Beriberi, which at one time was a scourge of certain areas during a period of active railway construction, is now practically a thing of the past.

18. Deaths in parturition among native women are extremely rare. Marriage occurs very early, frequently at ages 14-16, and on the average from six to seven children are born, of whom at best three will survive. Unfortunately my fecundity data are not as extended as would be desirable, but inquiry was made at most of the mission settlements, where through the coöperation of priests a practically complete census could be secured.

19. Old age, or the longevity above sixty, is rare. I ascertained the approx-

imate ages of nearly 3,000 natives and mixed-bloods, but the data have not as yet been carefully tabulated for precise conclusions. At the same time, my records show some cases of extreme longevity, in which the persons were alleged to have reached the age of one hundred and over. Several of such cases I examined personally and I am satisfied that they were not cases of pre-senility, but unquestionably instances of exceptional longevity.

20. In my local medical and statistical investigations I was materially aided by Dr. Grana at Lima, Dr. Arguedo at Cuzco, Dr. Morales at La Paz, Dr. Fleishman at Porvenir, Dr. Meyer at Cachuela Esperanca, Dr. Burney at Porto Velho, Dr. DeMatta at Manaos and Dr. Rosado at Para.

21. As perhaps the best practical illustration of the value of local hospital statistics, I may briefly refer to certain data for the Central Hospital of Manaos, covering a portion of the year 1921. Out of 354 cases 71 were ulcers, mostly of the leg and foot, 58 were cases of malaria, 24 cases of rheumatism, 19 cases of pneumonia and bronchitis, 13 cases of syphilis, 10 cases of tuberculosis, 7 cases of parturition, 6 cases of cancer, 1 case of diabetes, and 141 cases from all other causes or conditions.

22. The importance of malaria is illustrated in a return for the army post of the northwest department at Cobija, for the year 1921, showing that out of 391 cases under treatment 175 were cases of malaria.

23. In a somewhat similar return for the Portuguese Hospital of Manaos, for the year 1921, I find that out of 498 admissions, 135 were cases of malaria. Aside from the foregoing, there were 25 cases of syphilis, 20 cases of pneumonia and bronchitis, 10 cases of ulcer, 9 cases of rheumatism, 8 cases of cancer, 5 cases of parturition, and one case of Leishamaniasis.

The foregoing briefly represents the general conclusions of my South American investigations. My opportunities were too limited for a consideration of the question of the alleged injurious consequences of cocoa chewing, which is quite a universal habit in portions of Peru and Bolivia, but of which I failed to see the degenerating consequences frequently attributed to it by those who have written upon the question. I likewise had no opportunities for considering exhaustively the question of overindulgence in alcohol, but my own experience was decidedly favorable in this respect as regards the native population. I met with no pronounced evidence of habitual drunkenness on the part of a large number of natives with whom for many months I came in close personal contact. At the same time, there is no question or doubt but that certain forms of drinking are decidedly injurious, and this applies particularly to the Andean highlands, where the raw alcohol consumed is entirely too strong in an undiluted form. But I met with no evidence that the native population is degenerating on account of venereal diseases, or overindulgence in strong drink.

I come now to the question of acclimatization on the part of the foreign-born white population. For the purpose of a systematic inquiry, I made use of a questionnaire containing thirty specific questions, which was filled in for some 220 white residents whose stay in the tropics had extended over a period of more than one year. The analysis of this material is also as yet incomplete, but the conclusions on the whole are decidedly favorable in the case of those who are obviously adapted to local requirements. I am absolutely convinced that there is a physical type which should not go to the tropics at all; while there are other types which suffer no serious consequences if the required moral and physical standards be met with. While among my 220 cases there were many who had suffered attacks of malaria, and

in some instances in a serious form, the large majority had been practically free from serious tropical affections during the entire period of tropical residence. As a matter of fact, in the case of white residents, strictly tropical diseases are of exceedingly rare occurrence. In a few cases beriberi had been contracted, but recovery had been secured as the result of the required change in nutrition and residence. Tropical ulcerations occur in some cases, but they usually yield to early and proper treatment. I met with only two instances of snake bite, a few cases of dhobie itch, and while blackwater fever had been experienced this had usually been in other tropical sections rather than in northern South America. The alleged over-indulgence in alcoholic drinks in the tropics on the part of an intelligent, properly occupied white population is, in my judgment, a grossly exaggerated guess at the truth. The most serious aspect of life in tropical regions is the isolation, or lack of contact with the outside world, and quite frequently the want of sufficient occupation for a full day's work. Where ordinary precautions are observed; where in malarial regions quinine is habitually taken each day in the required doses; where proper food is available, and there is proper housing as a required safeguard against sudden weather changes, I am absolutely satisfied that continued residence in the normal tropics is not incompatible with health and long life. Unquestionably residential changes are advisable, for much the same reason that a vacation period in northern regions is becoming a habit with a large portion of the people. In my own case I never suffered an hour's illness or a serious disabling inconvenience, and though often exposed to considerable hazard I met with no accidents deserving of consideration. But from the outset of my residence in the lowlands each day I took ten grains of quinine, or the standard malaria treatment as recommended by the Malaria Committee in the case of existing disease. I had my blood examined by Dr. Thomas of the Liverpool School of Tropical Medicine at Manaos and I was found entirely free from parasitical infection, both of this and other diseases to which I had been exposed.

Broadly speaking, the general conclusions regarding my investigations are:

First.—The fundamental need of the South American tropics is the development of a system of medical practice throughout the rural regions, available to every element of the population. At the outset such a system would unquestionably require a state subsidy and to this extent would constitute state medicine, but would be to the enormous advantage of the native population.

Second.—I would suggest the further perfection of vital statistics, which for the large central population are quite trustworthy, but for the remainder of the country practically useless. The American idea of a registration area should be encouraged, and for Brazil particularly already a large number of localities are available for the purpose.

Third.—There is surgery for a system of disease notification in the case of the more dangerous afflictions, as perhaps best illustrated by the continued occurrence of plague in Peru and of typhus in Bolivia. The government has no definite knowledge as to such outbreaks, no definite data as to the extent of their prevalence. I visited localities in which probably one-half of the population was seriously affected by typhus, without any medical attention whatever.

Fourth.—There is most urgent need for better hospital provision in the smaller centers of population and accessible to large areas within convenient reach. Again and again I have stood at the bedside of patients, dying obviously for the want of proper medical attention, while in such cases as espundia, institutional treatment is frequently the only means of a cure.

Finally.—I desire to utter a word of protest against the exaggerated and fanciful accounts of explorers, travelers and writers, who are chiefly responsible for the erroneous views which prevail in the published accounts regarding the health-injurious consequences of residence in warm countries. Often the purpose is not scientific research, but mere sensationalism, fostered by every aid of publicity measures bordering upon charlatanism. I had with me numerous accounts of explorations contributed to the Royal Geographic Society, which I found practically misleading, or at least of a very limited degree of usefulness. Seeking for the unusual, exceptional, picturesque or dramatic serves only the purpose of temporary notoriety, but does not add to the required increase in knowledge and understanding of which the world is most in need.

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COORDINATION OF VOLUNTARY HEALTH AGENCIES*

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IT is reported that one of the leading national organizations recently forbade the use of the words "coördination" and "coöperation" in the annual reports of its staff members. Certainly these words are extensively overworked, and a prize is in order for the individual who will invent a satisfactory substitute.

Perhaps the words would not become so tiresome if they were not so frequently merely words, instead of symbols of action. As you know, the psychologists tell us that our impulses toward cooperation, while definite and real, are relatively weak. Presumably this means that the instincts (if instincts really exist!) for sympathy, gregariousness, self-sacrifice, etc., have a hard time in competition with the individualistic impulses for superiority, acquisitiveness and pugnacity.

At the same time, we have reached a stage of human development where the coöperative tendencies have assumed tremendous importance, particularly in countries organized on a democratic basis. "Coöperation is the basis of democracy," and it appears, in all walks of life, that somehow or other we must find out how to live together if, as individuals or social groups, we are to continue to exist at all. This seems to be true not only in local affairs, in community problems, in national affairs, but also in international affairs. It applies, indeed, not only to social and health interests, but to economic questions, industrial organization, etc. Consequently, the need for finding the formula for successful coöperation between organizations is great; further than that, the opportunity for progress in this direction seems greater in our own field of social and health organization than in any other direction. We are service organizations; we are banded together in the community interest; we are less hampered by competitors and antagonistic interests than is the case in industrial or international affairs. Consequently, does it not seem that we may be in a position to do pioneer work of value both to our own movement and to the world at large at experimenting with and proving the worth of certain devices which promise to be of value in furthering coördination and coöperation?

*Address delivered before the Maine Medical Association and the Maine Public Health Association, August, 1922.

The interrelations of the voluntary health agencies present real problems. First, perhaps, is the inevitable question as to what is the legitimate range of function for the voluntary groups. While this no doubt changes from time to time, yet at the present time it is characterized by certain generally accepted features. These might be briefly itemized as follows:

1. A primary obligation upon voluntary groups is the recognition of the essential leadership and responsibility of the official health authorities. All work of the private agencies should aim at the support of the legitimately organized and forward-looking official groups.

2. The field of research offers a broad opportunity for voluntary resources at the present time, primarily because it is difficult for official agencies to secure the funds for this type of essential activity.

3. Akin to this is the field of demonstration where practical services may be experimented with, and where their worth or lack of worth may be demonstrated, preliminary to their adoption or rejection by the official organization.

4. Related also is the devotion of a considerable amount of energy and resources to general education, to pave the way for the assumption of new obligations by the official agencies or to reinforce popular support for the maintenance of assumed activities.

While private organizations from time to time have wandered beyond this range of interest, its limitations are now generally recognized, and it is on a basis of this range of interest that the last few decades have seen the development of dozens of national movements interested, in whole or in part, in the preservation of health or the prevention of disease. While the characterization of the recent health organization situation as a hodge podge or "57 varieties" may have been somewhat of an exaggeration—though a useful one—still the organizations that have grown up in the last few years are too numerous even to list at this time. Beginning with the American Public Health Association in1872 (preceded, it is true, by the American Medical Association itself), we have seen the gradual creation of a list of movements interested in tuberculosis, social hygiene, infant mortality, mental hygiene, public-health nursing, child health, school hygiene, cancer, cardiac disease, etc.

Many also have been the movements toward the coördination of these voluntary groups. Coördination has, indeed, been our war cry, and our peace slogan, and, unfortunately, the watchword of more failures than successes. However, the efforts initiated during the last decade by the American Medical Association, the American Public Health Association, etc., have constituted progressive steps, and have paved the way toward the actual establishment in 1920 of the National Health Council.

This organization, composed of the leading national voluntary health agencies, the State and Provincial Health Authorities, and the U. S. Public Health Service as an advisory member, was established on the basis of practical services, recognizing the continued autonomy of its participating members, and operating on a small budget derived from its members and from outside sources. As some of you know, its services have included a legislative information service in Washington, the establishment in cooperation with the Common Service Committee in New York of joint office facilities for the headquarters of many of its members, a general health information service through the *Monthly Digest* and other publications, the studying of the problems of state health coördination, the promotion of coördinated health educational campaigns, etc.

Before this audience, there is one interest of the National Health Council that deserves, perhaps, an additional word, namely, the problem of state health coordination. It is recognized that all of these national agencies bear a relation

of close dependence upon state health machinery. It is recognized that the problem of health coördination nationally cannot be solved without an equally effective parallel movement in state and local communities. Consequently, the National Health Council with the help of its members is conducting a careful study of representative states. It is found in these states, that there are at least two distinct and fairly flourishing tendencies in the direction of voluntary health service integration. The state health council represents the first type, where such voluntary movements as tuberculosis, mental hygiene, social hygiene, nursing, cancer, child health, etc., have created a central clearing house and have established certain interests in common, as in Massachusetts, Utah and other states. The second is a single merged public-health association, generally growing out of the earlier tuberculosis movement and including now in its several divisions most, if not all, of the movements referred to above. This is characteristic of such states as Maine and New York.

Whatever may be the local method of integration, the resultant state organizations have certain problems in common. There is no time to discuss these here, but they include the following:

1. The relation of the state voluntary organization to the official health department. Surely this should be on a basis of the fullest coöperation and at least advisory participation.

2. The relation of the voluntary group to the medical organization. Here, too, the relation should be an active participating one, and, in many of the interests of the voluntary groups, the obligation for organized medical leadership should be recognized.

3. The relation of the divisions or branches of the state health organization or council to their corresponding national groups. Certainly until a closer degree of integration on a national scale shall have been effected, this relationship must be a reasonably direct and intimate one.

Other questions involved include the relation of the coördinated state body to the National Health Council, the relation of the full fledged health organizations in the states to state groups with a partial health interest, the relation of the state organizations to the problem of wide-spread popular membership, etc. These points can only be mentioned here, but they will require a great deal of constructive and sympathetic analysis and thought before a solution can be anticipated.

We are, it seems, faced in the public-health field with a characteristic and timely problem. It is a problem which involves the conservation of energy on the one hand and the development of the technique of working together on the other. We are seeing in industry, and, indeed, everywhere, the breaking down of the old authoritarian structure. In industry, the movement characteristic of the time is coöperation and participation in profits, in management, in direction. To meet these needs the formula for effective coöperation must be developed.

That it is a difficult problem goes without question. While Mr. Hughes has said, "There is no problem that conference will not solve," yet we are seeing today the difficulties that conference finds in the solution of such problems as railroad management and coal production.

Yet fundamentally we are aiming in health work at least at a commonly recognized objective. Consequently our project is relatively simple. We are endeavoring to substitute organized purpose for scattered desire. We admit the necessity for variety in organization, but believe that it can be secured without confusion; that versatility is possible without chaos. Our hope should be to establish a collective will, operative through a synchronized program, and aiming at the laying of a firmer health foundation for social and economic growth.

SHOULD THE SOCIAL SERVICE DEPARTMENTS IN CHILDREN'S HOSPITALS BE DEVELOPED INTO DEPARTMENTS FOR THE PREVENTION OF DISEASE?

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Read before the Child Hygiene Section of the American Public Health Association at the Fifty-first Annual Meeting, Cleveland, October 17, 1922

THE science of preventive medicine is advancing more rapidly than that of any other branch of medicine, and it is possible with our present knowledge to prevent most of the diseases of infancy and childhood, if we are able to put the proper measures into effect.

located, and it should be linked in a very definite way with all child-health work.

Generally speaking, children's hospitals have not kept abreast with the rapid progress being made in preventive medicine, and too few have realized that a hospital has the ideal equipment needed



Exterior View, Department for the Prevention of Disease

The prevention of disease is one of the most important functions of a hospital. There is every reason for the statement that the modern hospital, to be efficient, must not only care for the sick, educate doctors and nurses, and conduct medical research, but must also actively engage in the prevention of disease. The hospital has this definite obligation to the citizens of the community in which it is

for the prevention of disease. The establishment of this work in the hospital can best be accomplished by the development of the social service department into a definite department for the prevention of disease.

It is the exceptional hospital which does not recognize the importance of social work in the care of patients, but many boards of managers yet fail to ap-

preciate that the social problems of the little patients are, in the broadest sense of the term, preventive medical problems. Miss Ida Cannon has said, "Social workers chafe at the futility of their efforts at repair, and long for a campaign of prevention."

Today, the fundamental principle of all medico-social work for children is prevention. We believe the function of hospital social service departments would be clarified if definitely committed to the prevention of disease.

If children's hospitals would create departments for the prevention of disease, indefinite social work would be changed into a concrete form of health work.

Are our present social service departments most effectively equipped to prevent disease? I believe not. The prevention of disease is more of a medical than a social problem. Hospital social service has rendered a wonderful service in the development of a real social conscience for the hospital, but it has reached the stage when it cannot help being conscious of its limitations, chiefly because of the lack of medical direction. It needs the active direction of physicans well trained in preventive medicine. Incidentally, preventive medicine requires much greater ability on the part of the physician than curative medicine, a fact not generally appreciated.

Too often we hear the unwarranted criticism made that hospital physicians fail to understand social work; but we must surely realize that the success of a physician's work in private practice depends upon his ability to make a good social diagnosis on which to base his treatment. In the hospital, much advice now given by social workers should really be given by physicians; that is, if we desire hospital patients to receive the same standard of attention which we demand for our families.

The social worker cannot be expected to understand the very delicate and fine distinctions between different degrees of health, and the effect that each has on the treatment which the child and its environment require. If the social worker is not directly under medical supervision, and receives from the doctor only a summary report of the findings on the child, she will decide many medical questions herself, more or less wisely.

The physician and social worker must work together in the same department, as they are essential to each other, but the summing up of the findings on each child should always be made by a physician, as he is the one properly qualified to correlate the social, economic, mental and physical data of the individual case, and to give the advice needed.

In many hospitals today, there is a distinct chasm between the social work and the medical work, chiefly because they are conducted in separate departments. Harmony of action can be brought about by the organization of a department for the prevention of disease, where the social worker and physician work together for the same end. Social workers should look with favor on the establishment of departments for the prevention of disease, as there is no place in the hospital where social work can be conducted so satisfactorily. In the department for the prevention of disease, the physicians consider not only the child as an individual, but his family, his home, school, play and playmates. This is the type of medical work which is ideal for the accomplishment of good social work.

Supervision of the social service in a hospital by an advisory committee is totally inadequate. The direction of the social work should be under a single individual; and for hospital social service, that individual should be a physician. To assume that hospital physicians lack training in social work; or on the other hand, to assume that because an individual takes the title of social worker, that she is well trained in sociology, does



Cooking Demonstration by Health Teacher

not make either assumption true. It is well to remember that the medical staffs of most hospitals in this country represent the best trained physicians in the community. The modern hospital appreciates the importance of selecting physicians for the staff who are interested in the social as well as the medical welfare of their fellow citizens.

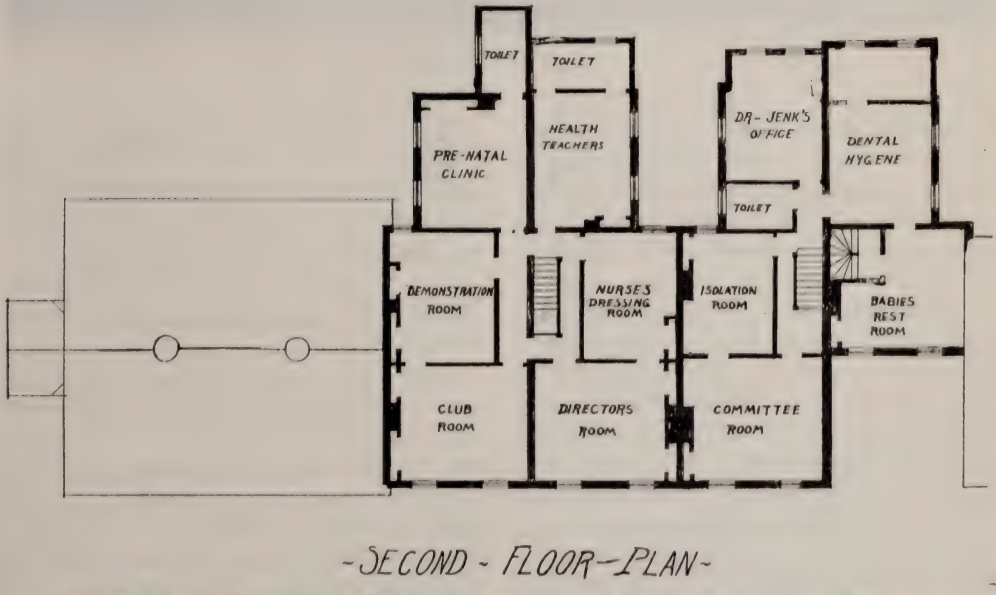
One of the difficulties with many hospital social workers today is the growing tendency to hold their opinion of equal importance with that of the doctor in formulating the treatment of the patient. For instance, Miss Cannon states, "Neither (meaning the social worker and the doctor) takes orders from the other." In our present social service departments, if a difference of opinion should arise, is there any question as to whose opinion would prevail? In a department for the prevention of disease, the social worker's findings properly supplement the medical findings and help the physician to formulate the plan of treatment.

The social worker's duty in the hospital is to assist the physician by supplying a social diagnosis, and by social case work to make the needed adjustments of the patient and his environment, under direction of the physician in charge of the case. Her chief contribution is to give the physician a true picture of the patient's environment.

If the social service work and the public-health nursing are placed in the same department in the hospital, and both put under one medical officer, the field work of the hospital will be done more efficiently than if conducted in separate departments and under different heads.

The department for the prevention of disease should be a distinct and separate unit of the hospital, just as the wards, the dispensary, and the pathological department are separate units. The position on the hospital staff of the physi-





The Children's Hospital of Philadelphia Department for the Prevention of Disease,

cian in charge should be equal to that occupied by other members of the major staff. Every hospital should have a department for the prevention of disease, but it is especially important for those affiliated with medical schools, where applied pediatric hygiene, the prevention of disease and social medicine may be taught. The instruction of the medical student in the prevention of disease develops the student's ability to think in a broad way of medical problems, and teaches him to correlate the social and medical facts of the case.



Health Talk in Assembly Room

Resident physicians should be assigned to routine service in this department as in any other, as the value of the department in the training of hospital internes in medico-social work is unsurpassed. It does away with the tendency of young doctors to consider patients as cases, and it makes them see the patient's individuality and his environment. In very few hospitals do internes actually work in social service departments, and yet in the department for the prevention of disease in which we happen to be personally interested, hospital internes are as eager for their regular term of service as in the other departments of the hospital.

All pupil nurses should receive a definite course of training in the department for the prevention of disease. Trained nurses are often justly criticised for their lack of a social outlook. For its value in training pupil nurses, the organization of such a department would, if for no other reason, be justified.

In 1912, the board of managers of the Children's Hospital of Philadelphia, which was the first children's hospital founded in America, decided that the hospital should be properly equipped—not only for the care of sick children, but also for the prevention of children's diseases.

They, therefore, developed the social service department into a department for the prevention of disease. Since that date, it has steadily increased, until last year, the quarters occupied in the dispensary building having been outgrown, the board of managers established the department in separate buildings in the hospital grounds.

The new quarters consist of an assembly hall for the use of clubs, classes, lectures and health meetings; equipped with a stereopticon, an attractoscope, a piano, a blackboard and standards for the exhibition of charts, and also a curtained platform on which to conduct health plays. There are a weighing and

measuring room with two dressing booths, a prenatal clinic room, a special waiting room for prenatal mothers, and a sewing room for their use equipped with an electric sewing machine and an exhibit of model clothing for the newborn. The buildings also contain a private office for the head worker, a room for the nurses, in which each nurse has her own individual desk, a general waiting room with individual stalls, a room for the instruction of physicians, medical students and nurses, a room for the health teacher in which instruction is given in cooking to small groups, and three physicians' examining rooms. In addition, there are a number of rooms set aside for the exclusive use of the associated medical clinic, comprising administrative offices, doctors' examining rooms, a dental room ,a rest room for the staff, a rest room for infants, a clinical laboratory, a dressing room for boys and one for girls, each with its individual bathroom, and an isolation room.

The department does hospital social service work and follow-up nursing for both the ward and dispensary patients. It sends one of its field workers to the home as soon as possible after the admission of a patient to the hospital ward, and it is her duty to make a social diagnosis of the cause of the child's illness. While the child is still in the hospital, the worker again visits the home with the object of preparing it for the return of the child by correcting any wrong conditions existing, and to teach the parents the fundamental laws of health. After a patient leaves the ward, the nurse follows him up and gives whatever nursing care is needed; but her chief work is health education.

The department for the prevention of disease not only watches over the patients who go out from the wards, but it has an equal responsibility to the great stream of children coming to the dispensaries. It is the duty of the department field workers to see that the dispensary patients understand and carry out the directions given by the dispensary physicians, and that they return on the day directed.

The department acts as a community health centre. Backed, as it is, by the entire resources of the hospital, it is really a super-health centre, one which is equipped to deal with every health problem presented by childhood.

The purpose is to make available preventive medical care to all children living in the neighborhood of the hospital, and it has adopted as a health zone the city ward in which the hospital is located. By limiting the preventive work to a district surrounding the hospital, much time of the workers, which would otherwise be wasted in transportation, is saved. If hospitals in large cities would confine their follow-up work to a definite district, and refer the cases living outside to some other agency doing similar work in that particular district, the economic saving of time would greatly increase the amount of follow-up work hospitals could do.

The work must be thorough in order that parents may be accurately informed. A family which has been carefully taught becomes in itself a little department for the prevention of disease, disseminating correct knowledge of child hygiene to its neighbors.

In the department at the present time there are five clinics: The health clinic is a consultation to which mothers bring their children for examination and for advice on how to keep well. The children who come are supposed, by their parents, to be well, but the examinations show that almost every child has some condition which requires attention. Children having defects are referred to the proper hospital dispensary and as soon as the recognized defects have been corrected, the child again returns to the health clinic and remains under its supervision; returning at regular intervals for re-examination and advice.



Clinic for the Prevention of Diphtheria

The associated medical clinic, which is the largest clinic in the department, is devoted exclusively to the health supervision of dependent children who are under the charge of the Children's Aid Society, the Children's Bureau and other welfare agencies in Philadelphia.

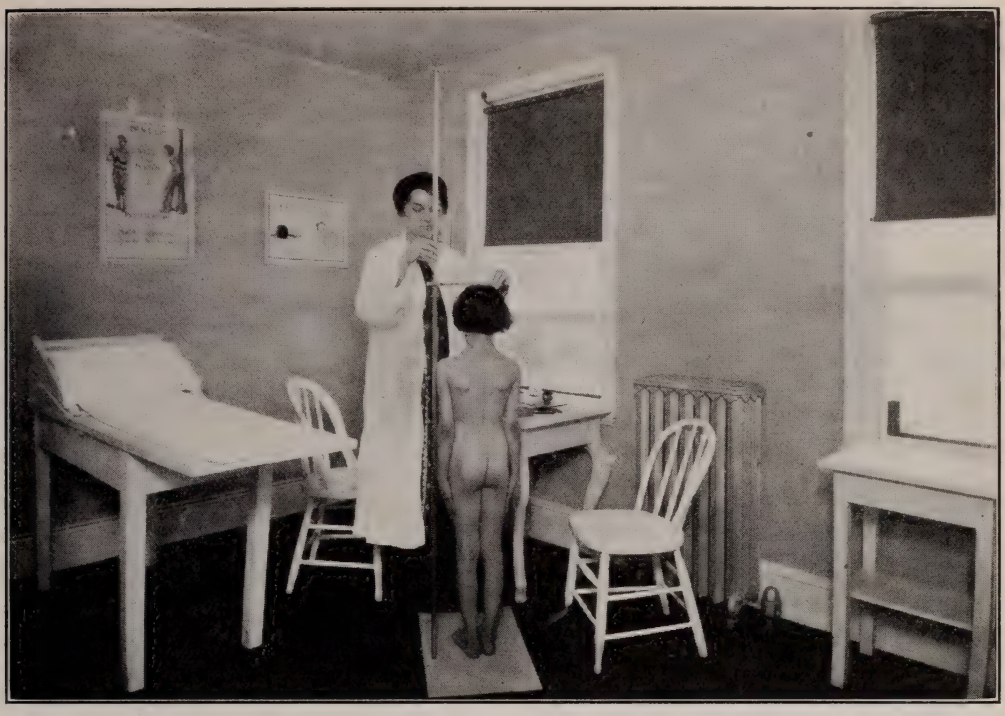
At the present time this clinic has approximately two thousand children in foster care under its supervision. Scientific child-placing demands a thorough knowledge of the child's health, and it is essentially preventive work. The medical examination determines whether the child requires family or institutional care, whether it is a suitable child for adoption, its diatetic needs, and the type of home best fitted to the physical and mental needs of the particular child.

The prenatal clinic is considered of great importance in the work of the department for the prevention of disease. The expectant mothers who have been cared for, have borne healthy children, and have themselves come through childbirth in good physical condition, able to nurse their babies.

A special clinic has been established for the prevention of diphtheria at which children, who are found susceptible to diphtheria, are vaccinated in the usual manner with toxin-antitoxin. We have recently organized two additional clinics, one for the prevention of rachitis, and one for the prevention of tuberculosis.

The health teacher has supervision of all the group instruction, and teaches health to groups of various ages. Mothers' conferences are held twice a week. Health clubs for boys and girls have been organized. In our health education, we have particularly concentrated on the preschool child. A posture class for preschool children is conducted, and also a preschool nutrition class.

The amount of work which the depart-



Nutrition Clinic

ment has been able to do is large, considering the limited number of paid workers on the staff. This has been made possible by the organization of an efficient corps of volunteer workers, under the direction of a captain of volunteers. They have rendered invaluable service to the department by acting as admitting clerks, clerks for examining physicians, assistants in the various clinics, by weighing and measuring children, acting as social hostesses, assisting in the production of health plays, playing the piano at club meetings, teaching sewing and chart making, acting as motor messengers, and assisting in the clerical work of the department.

The department has established a child hygiene association, which acts as a forum for the study of child welfare. Monthly meetings are held where subjects are discussed from the point of view of the parent, the teacher, the physician, the nurse and the social worker. Anyone who is interested is welcome to come and take part in the discussion.

Criticism may be taken of the title, "Department for the Prevention of Disease," and possibly it would be better to call it a department for the promotion of health, or public-health department. We believe, however, that until the public in general is better educated on health matters; the present title is preferable. In any community where this work is needed, it is difficult to make parents believe that their seemingly well children require medical attention; and we have found it easier to persuade them to bring their children to the department for the definite object of preventing disease. We believe it would be more difficult to get them to come, if the department was called a department for the promotion of health.

Although it is called the department for the prevention of disease, we really

work it as a department for the promotion of health. The term "prevention of disease," as here used, has a very broad definition, and includes the prevention of all harmful conditions, whether mental, moral or physical, which interfere with the proper adjustment of the patient and his environment. The prevention of difficulties and of failures are just as much the function of this department as the prevention of disease. It might not improperly be considered a department for the prevention of trouble, as many parents come to the department for advice and help with troubles of all kinds.

While public-health work is not new to the hospitals in America, and many have been interested in prophylactic clinics for years, our plea is for the correlation of all the health activities of the hospital in a single department. The work will then be done with greater efficiency, but it must be under medical supervision, if the department is to be called a department for the prevention of disease.

CORRECTION

In the chapter on "Public Health Education" from the Report of the Committee on Municipal Health Department Practice, published in the October, 1922, issue of the JOURNAL, some erroneous statements were made regarding the publications of the New York City Department of Health (p. 817).

The figure 11, given as the circulation of the *Weekly Bulletin,* should, of course, be 11,000. It is sent free of charge to all physicians and health agencies in Greater New York. A nominal charge of 10 cents a year is made to others, chiefly for the purpose of admitting such copies to the mails at pound postage rates.

The edition of the *School Health News* should be 25,500 copies. It deals with communicable diseases and physical defects among schoolchildren from a preventive standpoint and is distributed free to the more than 25,000 teachers in the public and parochial schools of the city, as well as to school medical inspectors and nurses.

The *Staff News* is printed for and issued exclusively to the employees of the Department of Health, to inform them of Department activities.

Through an oversight credit was not given to the *Journal of the American Medical Association* for "Tale of a Tummy" which appeared in the October issue of the JOURNAL.

Accuracy of Birth Records.—"It's the little things that count" in making for accurate registration of births and deaths. For instance, an ex-soldier wanted to get extra compensation for the birth of a new baby. He was entitled to the money, but had to file a certified copy of the certificate of birth. We sent a copy of the certificate on file and it was promptly returned as no good, because the surname was not that of the soldier. Our original certificate showed the name of "Kinterns" while the name should have been "Kintems." An affidavit of correction had to be filed and a corrected certificate issued, all of which took time and money, just because the doctor who made out the original certificate was careless of his writing. This has happened many, many times and we wonder just how many of the certificates are really worth anything *as legal documents.* Yet, that is the test that they must stand.

If you can't read a certificate easily, please ask for a translation! At some future time it may mean money, or life, or good name to some man or woman. Let us serve the coming generation to the best of our ability, for it certainly cannot safeguard its own interests now.—*New Mexico State Bureau of Health Weekly Bulletin.*

PUBLIC HEALTH NURSING

(Abstract of Chapter from Forthcoming Report of the Committee on Municipal Health Department Practice.)

The task of analyzing municipal health-department practice is nowhere greater than in the field of public-health nursing, wherein the activities of public and private agencies overlap and intermingle to an extraordinary degree, and different cities exhibit different opinions as to the work to be performed by the public-health nurse.

To supplement the original schedule used as a basis for studies made by the Committee, a questionnaire was sent out early in 1922 to visiting nurse associations of the 83 cities studied, asking for detailed information as to the nature of the work performed by all public-health nurses in their respective cities. There were returns from 51 cities. For general conclusions as to public-health nursing services in proportion to population, the official figures of the original survey are used, but the 1922 questionnaire has given subsidiary information of great value.

Public-health nursing service of some sort is available in all the cities studied. Grouping official and unofficial agencies, in 1920 there were an average of 16.5 public-health nurses per 100,000 population in 80 cities. Eastern cities were better provided than Southern or Western cities. New England cities, with 26 nurses per 100,000 population, were best provided. This is due to the many nurses provided by private agencies. The usually accepted estimate of an adequate service calls for 50 per 100,000 population.

In 51 cities, 55 per cent of the nursing service is provided under public, and 45 per cent under private auspices. About half of the nurses confine their work to teaching, and the other half combine instructive work with bedside care. Only 38 per cent of all the nurses tabulated are giving generalized bedside and instructive service. Two types of service stand out most prominently, the specialized purely instructive work of public authorities and the generalized bedside and instructive service of the private organization. The consensus of opinion among those who have made a study of the subject appears to be in favor of a generalized service combining health instruction and bedside care.

Health-department nursing work varies widely in individual instances. In some cities all public-health nursing is carried on by the health department, in others by the municipality; in Kansas City, Kansas, all public-health nursing is done by the Visiting Nurse Association with a subsidy paid by the city; while in Oklahoma City all public-health nursing is in the hands of a Public Health Nursing Association financed by the city and administered by a special board. Of the 83 cities, 56 do general public-health nursing, 47 infant-welfare nursing, 46 venereal-disease, 45 tuberculosis, and 35 school nursing.

Thirty-nine cities out of the 83 report a specific allotment for public-health nursing, the average appropriation for this group being 9.5 cents per capita.

Under private auspices public-health nursing is usually carried on by some nursing association, and the typical plan is a generalized district service giving bedside care as well as instruction. This service costs from 50 cents to $1.43 per visit. The average for 32 cities is 79 cents.

Only 27 cities out of 55 for which data are available report any definite steps toward coöperation where nursing is conducted by several different organizations. In Cleveland a central committee on public-health nursing aids in the coördination of the nursing work of the Department of Health, the Department of Education, Babies' Hospital and Dispensary and the Visiting Nurse Association. In some cities the various departments and associations are under one supervisor.

Data regarding the work of nursing associations in 46 cities give an average of 1,585 visits per year per nurse; municipal departments, doing purely instructive work, show 1,693; 26 cities whose health-department nurses are doing specialized work report 1,618, and 9 cities doing generalized work report 1,842 visits. Four cities where public and private forces are combined report 2,286 visits per nurse.

In 1919 there were 871 industries with nursing services supplied by 1,213 graduate

nurses. This number has greatly decreased. In 83 cities reporting there are now 984 nurses in various industries, many serving in a number of industries.

There are three methods of training a public-health nurse: a school of public health connected with some university, a hospital training school, which gives short field training under local health departments or visiting nurse associations, and nursing organizations which give new nurses a few lectures by members of the staff and send these new nurses into the field for a few weeks with older nurses. Twenty-two cities of 79 report organized courses in public-health nursing of 4 to 8 months.

Even in the larger cities, public-health nursing service is still notably inadequate, the average of 16.5 nurses per 100,000 population being about one-third of the ideal figure.

While there are all sorts of combinations in public-health nursing, there are two types most common, which include three-quarters of all such nursing, the purely instructive specialized nursing under public auspices and the combined instructive and bedside care under private auspices.

There is a growing tendency to concentrate public-health nursing in the hands of the official health agencies of the community, which is sound and wise. On the other hand we note a growing recognition of the fact that the ideal type of public-health nursing is that which combines instruction and bedside care on the generalized district plan. These two tendencies have been brought into harmony in half a dozen cities where this work is performed by the department of health.

Whether the service of the department be on the generalized or specialized plan, the supervising of all nursing should be under a single director, herself a nurse. Supervisory personnel should be in the ratio of at least 1 supervisor to 10 nurses. Greater efficiency would be attained by relief from routine labor provided by an adequate clerical staff.—*Public Health Nurse*, October, 1922.

NATIONAL CANCER WEEK

The second annual National Cancer Week will be held November 12-18, under the auspices of the American Society for the Control of Cancer. The very marked and gratifying success of the first Cancer Week in 1921 and the widespread interest aroused in the problem have aroused hope that another such campaign would meet with continued success. The plans of the Society comprehend the use of the following methods for the coming effort: Written articles in medical and surgical journals, newspapers, and other periodicals; enlistment of the motion-picture houses for showings of lantern slides (see below), four-minute talks, distribution of cancer leaflets, and showings of the Society's educational film, "The Reward of Courage;" scientific and public lectures before medical societies, medical schools, nurses' organizations, etc.; popular lectures before churches, women's clubs, fraternal orders and lodges, civic clubs, chambers of commerce, labor unions and trades councils; radio talks; demonstrations and diagnostic clinics; distribution of circulars, bulletins, etc.

Mr. Van Ness Harwood, who conducted the Society's publicity last year, has again been engaged for this year. Short cancer articles will be sent regularly to all the principal newspapers in the United States and Canada. Cancer articles have been requested by many monthly and weekly magazines, and these are being prepared. Two lantern slides entitled "A Message of Hope" and "Danger Signals that May Mean Cancer" were prepared and financed through the efforts of Mrs. Samuel Adams Clark for Cancer Week last fall, and they may be purchased from the Society, on glass for 16 cents each, or on mica for 8 cents each.

The Society now has 655 cancer committees, active state organizations for greater centralization of administration. All of these groups are coöperating wholeheartedly in the coming campaign.

THE HEALTH OFFICER'S EXCHANGE

Under this head the Journal will print short articles giving accounts of actual experiences, methods and plans which have proved of practical utility in local health organizations, in the hope that health officers and sanitarians generally will find them of interest and value. Health officers and other health workers are invited to submit their experiences. Manuscripts must be limited to 1,500 words, preferably 1,000. The briefer and more concisely written they are, the better the chance of their publication.

VENTILATION OF PRIVIES IN BIRMINGHAM

The most commonly used types of privies are the pit, box and can, and septic. In the past it has been considered necessary to furnish these privies, as well as all other types, with flue pipes to carry away the disagreeable odors generally associated with privies.

It seems reasonable to suppose that the box and can privy is the most liable to cause odor. The can is usually partly filled with excreta; it is often exposed to considerable heat from the sun; decomposition of the excreta with the formation of hydrogen sulphide is almost certain to take place in the summer. The septic closet gives off certain gases, but these should not be so disagreeable, nor so near at hand as with the box and can. The pit would appear to need ventilation least of all, for in a dry pit, the process ought to be more of a slow oxidation or drying out, and the odors should be neither strong nor disagreeable.

In Birmingham, Ala., several thousand boxes and cans have been installed without flue pipes, and these have given no more nuisance than those equipped with vent pipes. If the vent pipe can be omitted, as seems to be indicated by the tests carried on for nearly three years in Birmingham, a considerable first cost can be eliminated, as well as the more important requirements of maintenance. The vent pipe is troublesome; if run through the roof, it almost invariably allows rain water to leak through with the result that the seat covers warp and the privy loses its fly-proof qualities; if the vent runs through the back wall, and thence up through the eaves of the roof, this particular trouble is obviated, but maintenance is much more difficult.

Just what elements in a privy are such as to cause odor, and can these be eliminated by a flue? The solution of this question seems fairly important to the privy builder or sanitarian. In some types of privies the cost of ventilation is 10 per cent of the total cost of construction and the maintenance is much more.

A favorite method to prove the value of the vent pipe is to burn a piece of paper in the tank or pit, the ascending smoke being held to prove the existence of a draft through the flue. This is no proof at all, for the air heated by the burning paper will rise, of course, just as it will from a fire in the open air.

In the case of the septic privy, the main products of the fermentation and septic action going on in the tank include hydrogen, carbon dioxide, nitrogen, methane (or other marsh gases), and oxygen. Carbonic acid, heavy hydrocarbons and carbonic oxide are found in small quantities. The only nuisance to be feared from any of these would be that the hydrogen and any sulphur present might unite to form sulphureted hydrogen, the odor of which is familiar. But this gas is heavier than air by nearly 20 per cent, and therefore would not rise unless the interior of the septic tank were warmer by several degrees (probably nearly 20 degrees) than the outside air. It is doubtful if this is ever the case, unless in the middle of winter in which case odors are not usually a problem. In fact, it is likely that in the great majority of cases, the interior of the privy tank is cooler than outside air of the average summer months. If this is the case, a vent located near the bottom of the seat riser would serve as an overflow pipe through which these heavier gases could flow out of the tank.

The gases given off from a septic closet are somewhat the same as those given off by septic tanks. No data are at hand showing the gases from septic closets, but the following table shows the gases found in three analyses to be given off by septic tanks:

Carbonic Acid.....	3.4%	...	...
Heavy Hydrocarbons...	.3	...	.5
Oxygen	.5	.4	.8
Carbonic Oxide.....	.6	...	...
Methane	78.9	84.1	75.2
Nitrogen	16.3	3.1	17.4
Carbon Dioxide.....	...	4.6	5.9
Hydrogen	...	8.6	.3

None of the objectionable gases, or of probable objectionable combinations, is lighter than air.

In the case of the pit privy, the process tends more to a gradual oxidation and drying out, especially where the pit is dry (as all well constructed pits should be), than to fermentation and septic action. The gases evolved and the chances for odor would be less. The inside temperature would probably also be lower in the case of a well built pit 5 feet deep than in the case of the septic closet or box and can.

Decomposition and the formation of hydrogen sulphide would probably be the most objectionable features to the box and can. Hydrogen sulphide is heavier than air, and some sort of overflow vent should care for this, as it seems to have done in the Birmingham installations.

From the points of view thus far considered, there is little probability of odor, especially if an overflow vent is provided whereby the heavier than air gases can escape.

There are, however, some other elements not yet considered, which may have an influence on the situation, perhaps a deciding influence. Data are lacking on the action of these and they should form a subject for further investigation. Indol, skatol, cadaverine, and the similar wastes expelled from the body, are these uncertain elements. They have characteristic fecal odors, and upon decomposition very disagreeable ones. Just what they do and how they act in relation to the formation of odors in privies is not known. They are, however, like the other objectionable gases already considered, heavier than air under the usual conditions encountered. Therefore the overflow pipe already mentioned should take care of them.

In an effort to find out by practical methods the importance of the flue pipe, all privies now being installed in Jefferson County, no matter what the type, are being built without flues or upright vents. The cut and try method is usually a long and costly one, however, and it seems that the subject might well be one of investigation by the U. S. Public Health Service through its Board on Excreta Disposal, or by other well equipped agencies. It is possible that the by-products of this investigation might yield still more valuable information than that sought for originally, such as data along the line of the elimination of odors from properly constructed privies, which would aid greatly in the application of sanitation in the field.

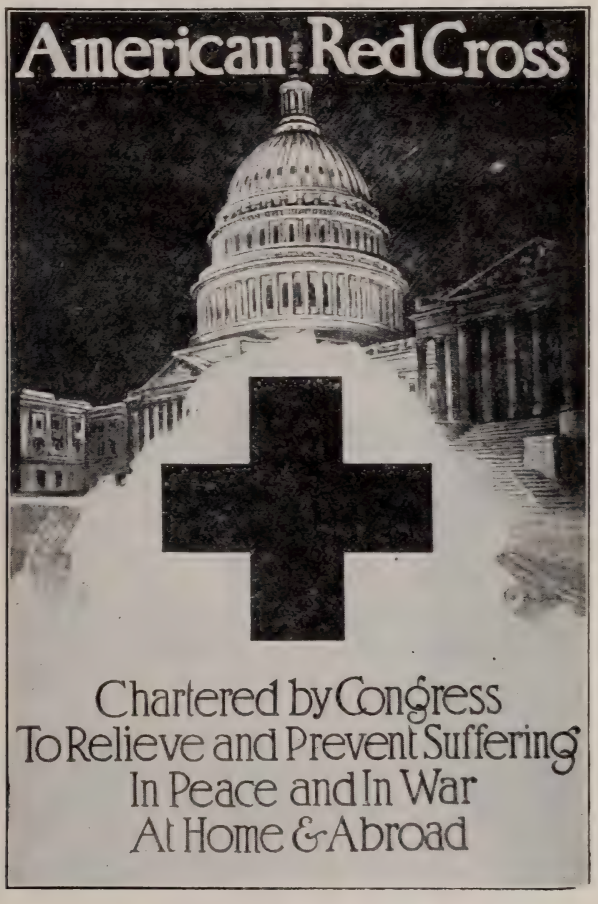
W. A. HARDENBERGH,
Sanitary Engineer,
Board of Health, Birmingham, Ala.

□

Factors in Longevity.—French exchanges comment on researches recently undertaken by Dr. M. Natier of Paris on the factors that conduce to longevity. Natier's experience has convinced him that to be healthy and alert in mind, one must be gaining in weight up to the age of 20; from 20 to 30 one *can* be gaining in weight, but from 30 to 40 the weight must be stationary, and after 40 the weight should decline. It should keep declining until one is thin, if one wishes to live to an advanced age in good physical and mental condition. Fat after 30, says Natier, is a dead weight for the organism. Besides leanness and moderation in eating and drinking, continuous activity seems to be the other indispensable factor in prolonging life. Organs that are not used atrophy and degenerate; hence moderate use of all the functions is necessary to maintain the organic balance. Emotional strain wears out the tissues. We grow old faster by the medulla-sympathetic system than by the muscles of the brain.—*Jour. Amer. Med. Assn.*, Aug. 19, 1922, 608 (*D. G.*).

RED CROSS ANNUAL ROLL CALL

A preliminary survey in relation to the Annual Roll Call of the American Red Cross indicates that the present strength of the Red Cross of over 4,000,000 members will be more than maintained for 1923. The Roll Call, which will begin Armistice Day, November 11, and close Thanksgiving Day, November 30, will be notable this year in the marshaling of forces throughout the world for a straightforward advance toward a set objective, rallying under the slogan, "Every American Everywhere a Member of the Red Cross." Under the leadership of John Barton Payne, chairman of the American Red Cross, the direct appeal in behalf of a great sustaining membership is to be made for support of the service rendered by the American Red Cross in their



homes and in hospitals to disabled ex-service men and their families, for which some $10,000,000 will be spent this year in work the government is not authorized to do and for which no government funds are available.

Three other important duties are also emphasized in the Red Cross program of activities—public-health nursing service for rural communities where adequate health facilities are lacking; preparedness for relief in disaster, famine, flood, epidemic; and the work of the Junior Red Cross at home and abroad in building up among children a spirit of unselfish service. These are the outstanding Red Cross services in a program which includes widespread instruction in home hygiene and care of the sick, in nutrition, general health conservation, first aid, water life-saving, and production of braille for the blind.

1920 LIFE TABLES FOR STATES AND CITIES

The Department of Commerce announces that abridged life tables based upon the 1920 United States Census will soon be issued showing conditions in 24 states and 14 large cities, also in the territory of Hawaii.

Altogether these tables cover 74 per cent of the total population of the United States. They show for these states and cities, taken as an aggregate, that the expectation of life at birth is 55.23 for white males and 57.41 for white females.

According to these tables the longest lived people in the United States are the Kansans, the expectation of life at birth in Kansas being 59.73 for white males and 60.89 for white females. Wisconsin ranks next with 58.77 years for white males and 60.70 for white females. If a record as a standard of comparison be desired it may be found in the figures for females in the county of West Sussex, England, whose expectation of life, the highest ever published officially by any country, was 63.05 in 1911-12.

Washington, D. C., outranks all other of the 14 cities with 53.63 years as the expectation of life for white males and 59.83 for white females. Pittsburgh comes at the foot of the list with 47.16 years for white males and 50.42 for white females.

For Negro males in the large cities the expectation of life is 37.92 as compared with 51.55 for white males, a difference of 13.63 years. For Negro females the figure is 40.28 and for white females, 54.77.

For purposes of comparison and to indicate progress, a table is included covering the census years 1910 and 1920. This, however, is restricted to the "original registration states," which include the six New England States and also New York, New Jersey, Indiana, Michigan, and the District of Columbia, since figures for other states are not available as far back as 1910. Within this area the expectation of life for white males has advanced from 50.23 in 1910 to 53.98 in 1920, an increase of 3.75; and for females it has advanced from 53.62 to 56.33, an increase of 2.71.

For those males who have reached the age of 32 the expectation of life is 34.93 years, and for those who have reached the age of 62, it is 13.38. For white females it is 36.12 at the age of 32, and 14.01 at the age of 62. These life tables show a marked improvement in mortality conditions among all classes between 1910 and 1920 except at certain ages between 17 and 32, these exceptions being due to the influenza epidemic.

EXPECTATION OF LIFE

Original Registration States

Year	Sex	Age 0	Age 32	Age 62
	WHITE			
1920	Males	53.98	34.93	13.38
1910	Males	50.23	33.33	12.85
	Difference	3.75	1.60	.53
1920	Females	56.33	36.12	14.01
1910	Females	53.62	35.40	13.70
	Difference	2.71	.72	.31
	NEGRO			
1920	Males	40.14	28.50	11.42
1910	Males	34.05	26.16	10.88
	Difference	6.09	2.34	.54
1920	Females	42.16	28.82	12.12
1910	Females	37.67	28.33	11.96
	Difference	4.49	.49	.16

While the various mortality conditions show that the chances of living are much more favorable among whites than among Negroes, the improvement among Negroes between 1910 and 1920 was slightly greater than among whites. Had it not been for the influenza epidemics of 1919 and 1920 the expectation of life shown for 1920 would have been considerably greater for both whites and Negroes.

The following table shows the various areas ranked according to the complete expectation of life at birth for each sex.

COMPLETE EXPECTATION OF LIFE AT BIRTH, 1920:

White (except in Hawaii)

Rank	Area	Males	Rank	Area	Females
1	Kansas	59.73	1	Kansas	60.89
2	Wisconsin	58.77	2	Wisconsin	60.70
3	Minnesota	58.54	3	Minnesota	60.58
4	Tennessee	58.49	4	Washington	60.44
5	Oregon, Washington	57.82	5	Oregon	60.31
6	Kentucky	57.61	6	Washington, D. C.	59.83
7	North Carolina	57.55	7	Missouri	58.95
8	Indiana	56.84	8	Tennessee	58.42
9	Virginia	56.75	9	Utah	58.41
10	Missouri	56.74	10	Virginia	58.35
11	Ohio	56.18	11	California	58.32
12	South Carolina	55.76	12	Ohio	58.27
13	Utah	55.31	13	North Carolina	57.87
14	*Aggregate*	*55.23*	14	Illinois	57.57
15	Michigan	55.07	15	Kentucky	57.53
16	Illinois	55.01	16	Los Angeles, South Carolina	55.85
17	California	54.36	17	Indiana	57.45
18	Massachusetts	54.00	18	*Aggregate*	*57.41*
19	Original registration states[1]	53.98	19	Connecticut	56.76
20	Connecticut	53.84	20	Massachusetts, San Francisco	56.50
21	Washington, D. C.	53.83	21	New Jersey	56.47
22	New Jersey	53.77	22	Original registration states[1]	56.33
23	Maryland	53.57	23	St. Louis	56.14
24	Los Angeles	53.35	24	Michigan	55.94
25	Pennsylvania	53.16	25	Cleveland, Pennsylvania	57.51
26	New York	52.74	26	Maryland	55.82
27	St. Louis	52.46	27	New York	55.66
28	Cleveland	52.44	28	Chicago	55.33
29	Chicago	52.19	29	Philadelphia	54.83
30	Philadelphia	52.08	30	Aggregate in cities	54.77
31	Detroit	52.03	31	New York City	52.72
32	San Francisco	51.68	32	Baltimore	54.24
33	Aggregate in cities	51.55	33	New Orleans	54.01
34	New York City	51.52	34	Detroit	53.43
35	Baltimore	51.11	35	Boston	53.32
36	Boston	50.55	36	Buffalo	52.98
37	Buffalo	49.53	37	Pittsburgh	50.42
38	New Orleans	49.39	38	Japanese in Hawaii	47.70
39	Japanese in Hawaii	49.30	39	Hawaii (all races)	47.31
40	Hawaii (all races)	47.60			
41	Pittsburgh	47.16			

NEGRO

42	States with more than 5% Negro population	46.25	40	States with more than 5% Negro population	45.38
43	States with less than 4% Negro population. Original registration states[1].	40.14	41	States with less than 4% Negro population	42.46
			42	Original registration states[1]	42.16
44	Large cities	37.96	43	Large cities	40.28

[1]Original registration states include the New England States, Indiana, Michigan, New Jersey, New York, and the District of Columbia.

EDITORIAL SECTION

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HOW YOU CAN HELP

All health officers should feel it a point of honor to support the campaigns of the recognized national voluntary health associations. There will be ample opportunity to do so within the next few months. The annual roll-call of the American Red Cross opens November 11 and closes November 30. The second National Cancer Week, sponsored by the American Society for the Control of Cancer, will be held November 12-18. The annual Christmas seal sale of the National Tuberculosis Association will occur during the month of December as usual. The national "Health Days" recently planned by the National Health Council and its member organizations will be held at a later date, probably in the spring.

All of these causes are worthy of the special interest and effort of sanitarians. Every American citizen above the subsistence level should be a member of the Red Cross. Its peace-time policies are not permanently defined, but its administrative soundness is guaranteed and it will always be found in the forefront of the public-health movement coöperating with all established agencies. Equally, every one should buy and use generously the Christmas seals, whose proceeds support not only the anti-tuberculosis campaign, but in many states, other health activities as well. To the extent of their ability and opportunity, all far-seeing persons should participate in the Cancer Week and Health Day plans. There are few who cannot profit by a thorough physical examination to forestall incipient defects or growths. The educational value of these occasions should be promoted by every possible means.

Health officers can aid in many ways—by liaison with the medical profession, the nurses, dentists, druggists, the public authorities, the schools, the civic bodies, by publicity through the press, the screen, the platform, by organization of special committees, by placing themselves unreservedly at the service of the national associations.

WHAT DO YOU SAY?

The man of science should be in possession of the technical vocabulary pertinent to his own field of work and be able to use words in their proper relations and exact meanings. Clear thinking and expression are fundamentally dependent upon accurate diction. You may be sure that loose, obscure expression is the accompaniment of hazy, befuddled thinking.

Technical words that are popularized ought to be guarded with special care lest they get out of bounds and become perverted or extended beyond their original and legitimate meaning. Such words as vitamin, serum, vaccinate, and preventive medicine are illustrations and it is imperative that physicians and hygienists should be temperate and exact in the use and application of such words.

The nomenclature applied to the arts and practices which deal with health are prone to frequent inaccurate use by the professional and layman alike, and at the risk of being irksome it may be worth while to review a few of these critically. One may almost daily hear or read hygiene, sanitation or preventive medicine used in a variety of meanings, and while there may be no sharp cleavage in the spheres of science they connote, it is possible to limit each so as to avoid confusion at least.

We can do no better than follow the late Professor William T. Sedgwick, who was a recognized master of the art of exposition. Twenty years ago he carefully defined *hygiene* as "the whole science and art of the conservation and promotion of health, both in individuals and in communities." We need such an inclusive word in our vocabulary. Hygiene may then be used with the qualifying adjectives *"personal"* or *"public,"* according to its sphere and scope.

Public hygiene has three main subdivisions: (1) *sanitation,* which embodies all the laws and practices which promote the health of groups of people or communities by modifying or controlling the surroundings. (2) *Preventive medicine,* which deals exclusively with medical practices that distinctly tend to conserve the health of groups of people. (3) *Demography,* which furnishes the numerical data relating to all the vital phenomena of populations. It also comprehends *epidemiology,* which attempts to interpret and apply such data.

Discussion of the terminology suggested above is invited from the members of the Associatoin. C. M. H.

THE COMMON COMMUNION CUP

It would seem self-evident in the light of present-day knowledge that the common communion cup in the Christian church, like the common drinking-cup, is a menace to the health of the community. Yet for reasons sentimental or otherwise, some churches still cling to it in the face of modern bacteriology.

A movement has recently been started in the diocese of Sydney, New South Wales, to induce the clergy of the Church of England to adopt individual cups in the service of the holy communion. A circular prepared in protest against the common practice was signed by 265 of the leading members of the medical profession of Sydney, and the movement has the hearty support of Dr. J. S. Purdy, the metropolitan medical officer of health of Sydney, and other health officers. The free churches of England and Australia have generally adopted the individual cup ,as have also the Baptist, Reformed, Congregational, Presbyterian, Methodist Episcopal, and numerous

other denominations in the United States. But the Anglican Church has lagged behind in this hygienic reform, and the Protestant Episcopal and Lutheran churches in the United States still use the common chalice.

The objections that have been made to the change are almost exclusively based on tradition. It would violate a long-established custom of the church and detract from the spiritual meaning of the service, say some. Others claim that there is no risk of infection, provided a "purificator" or cloth is used to wipe the rim of the cup before each communicant partakes. Some Christians who put a premium on faith as the controlling agent of physical phenomena feel that they cannot suffer harm while participating in the holy sacrament. As late as 1908 the Lambeth Conference considered the change unnecessary on the ground that high medical authority for it had been lacking.

How specious these arguments are is plain. But fortunately a body of competent medical and sanitary opinion is now accumulating, as evidenced by the New South Wales movement, and the total abolition of the common chalice cannot long be delayed. Wise churchmen who understand the significance of scientific thought will come to the aid of the medical profession and will not stand in the way of this vital reform.

FILIBUSTERING IN TWO HEMISPHERES

The *Journal of the American Medical Association* carries in its foreign letters in the September 30, 1922, issue an interesting account of the manner in which the proposed Spanish public-health law was defeated by a reactionary legislator. The bill, which it is said contained modern sanitary improvements recommended by leading Spanish sanitarians, was called up in the closing session of Congress. One senator, Sr. Sanchez y Sanchez, arose and availed himself of a legal provision that gave him the right to ask for an absolute majority of affirmative votes before any law is approved, and then delivered a speech on the subject. According to the *Journal's* correspondent, this worthy senator admitted he knew nothing about the proposed legislation but was going to beat it anyway. For four hours he read excerpts from Don Quixote. The bill did not pass.

Somewhere, we think it is in the United States Senate, we have heard of filibustering. It would seem that this delicate manner of defeating worthy legislation is not unknown in Spain. It is a regrettable thing that one man, usually an ignoramus, alone and against the will of the great majority, can block important measures which have to do with the welfare of humanity. It is regrettable, but unfortunately it is so, here and elsewhere. J. A. T.

ASSOCIATION NEWS

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HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 10th of each month for publication on the 20th. Mail to New York office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in New York City. In replying give age, professional training, salary requirements, previous positions held and three or more references.

Wanted: College man for water laboratory of state health department, who can analyze water bacteriologically and chemically. Salary $1,800 to start. Address 504 H. C. W., care of this JOURNAL, New York address.

The Illinois State Department of Public Welfare desires applicants for vacancies that exist in the School of Psychiatric Nursing, located at 6400 Irving Park Blvd., Chicago. A splendid opportunity is offered to young women who wish a course in professional nursing with full maintenance and a liberal allowance while in training. Graduates of the school are adequately equipped for a broad field of service. Communications should be addressed to the School of Psychiatric Nursing at the address given above.

Wanted: A competent nurse who has had training in tuberculosis work, to take charge of the nursing department in a tuberculosis hospital. An excellent opportunity for the right person. Address Eagleville Hospital, 7th and Lombard Streets, Philadelphia, Pa.

Wanted: Health officer for small West Virginia city. Salary $3,600 to $4,000. Excellent opportunity for trained public-health executive. Address 503 R. C., care of this JOURNAL, New York address.

POSITIONS WANTED

Positions wanted announcements will be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 10th of the month.

Wanted: Veterinarian—Open for engagement as a veterinary inspector; experienced as a deputy state veterinarian three years testing cattle for tuberculosis; also five years as veterinary inspector for the U. S. Bureau of Animal Industry in the Meat Inspection Division, doing ante- and post-mortem inspection of animals for public consumption. Age 37. Graduate 1906. No fraternal affiliations. Address, Dr. I. Zimmerman, 16 Poplar Terrace, Bridgeport, Conn.

Wanted: City or hospital laboratory position; thoroughly experienced in general laboratory diagnosis, such as urinalysis, Wassermann's bacteriology and blood chemistry and analysis. Good references. Address 230 K. W., care of this JOURNAL, New York address.

BOOKS AND REPORTS REVIEWED

Bacteriology, General, Pathological, and Intestinal. *Arthur Isaac Kendall, B.S., Ph.D., Dr. P.H., Professor of Bacteriology, Northwestern University Medical School, Chicago. Philadelphia and New York: Lea & Febiger, 1921. Second Edition, Revised, with 99 Engravings and 8 Plates Pp. 680. Price, $6.00.*

In the five years which have elapsed since the appearance of the first edition of this book, much knowledge has been gained, and much doubt has been thrown on some matters on which we thought we had definite knowledge.

The book differs from other texts chiefly in the greater attention given to the chemistry of bacteria. In fact, for the purposes for which the book is designed, this feature is carried to an excessive degree, as for example on pages 69-71 and 219.

In describing the theories of immunity, "The Humoral, Side-chain, or Ehrlich Theory" is spoken of as one. The so-called humoral theory far antedated Ehrlich's work, going back to Chauveau and Buchner at least. Ehrlich based his theory on the nutrition of the cell. "In every living cell," he said, "there must exist a dominating body and a number of other chemical groups or side-chains. These groups have the greatest variety of function, but especially those of nutrition and assimilation."

A misleading classification is given to the pyogenic cocci (p. 254) as "Bacteria of Inflammation." We are told they are "ordinarily unable by themselves to locate and force an entrance into the tissues of their host." * * * "They are locked up in the body, as it were, and eventually perish."

While there is nothing in the text to show just what organisms are included in this classification, the staphylococcus and streptococcus groups are mentioned, and the context indicates that they are meant. There are few more widely spread organisms than the streptococcus—in which group the pneumococcus is included—and none which cause more protean forms of disease, probably none which are more freely given off from the body. One wonders if typhoid ulcers, diphtheria throats, tuberculous glands and nodules, lungs invaded by the influenza bacillus, meningitis, malignant pustules, hemorrhagic septicemias, etc., are not just as typical manifestations of inflammation as are the lesions caused by staphylococci and streptococci.

We are told of Hodgkin's disease that "the etiology remained obscure until Negri and Mieremet published a description, etc." Unfortunately the etiology is just as obscure as it was before their publication.

The bacillus of Lustgarten is still mentioned on page 448 as a danger in the examination of urine for tubercle bacilli, being spoken of as a separate organism from the smegma bacillus. Johne's disease and its acid-fast organism, which is of so much importance in diagnostic work in cattle, is not mentioned.

In spite of the "extensive changes and additions to nearly every chapter" spoken of in the preface, there are a number of out-of-date statements. No cases of rabies are said to have been reported in England since 1903. On the contrary some severe and fairly wide-spread outbreaks have been reported since the war. The routine of treatment at the Pasteur Institute of Paris, which is given as that followed at the present time, is quoted from Kraus and Levaditi, 1908. As a fact, for a number of years the sensitized virus of Besredka has been employed for a part of the treatment. The method of Harris is not mentioned, though most successful and having many advantages over the older methods, nor is the plan of injections of the hygienic laboratory given, though used almost exclusively in this country when the original Pasteur vaccine is employed.

While the book contains much that is of value, it is not well balanced nor a reliable guide. The title is not justified by its contents. The value to either student or practitioner of the enormous number of references, many of them exceedingly old, is more than doubtful. It is hardly possible that the author has read all of these in the original. One gets weary of the frequent references to the author, who quotes himself seventy-six times. Such quotations are pedantic, and to be avoided.

The book is beautifully printed and put together, though a number of the illustrations are poor.

MAZYCK P. RAVENEL, M.D.

✠

Sanitary Entomology. *Edited by W. Dwight Pierce, Ph. D. Boston: Richard G. Badger, 1921, pp. XXVI + 19-518, figs. 146. Price $10.00.*

Within the past few years a number of works relating to medical entomology have made their appearance, all of which have their merits. Having, however, been prepared by a single author, or two at the most, there is a lack of that intimate acquaintance from close contact with the whole subject that obtains with a corps of specialists. In the preparation of the present work, which is the outgrowth of a series of lectures prepared during 1918 and revised up to March 1, 1919, the editor has been assisted by a corps of nine, all of whom are specialists in their own fields.* Because of this departure—which may well be extended in later editions—we can unhesitatingly say that it is the best work in its field at the present time, and one to be recommended to health and sanitary officers generally, to whom the recognition of and a knowledge of the life history and bionomics of insect disseminators of disease and the means of control, based upon such knowledge, is so important.

The opening chapters—there are 35 in all—treat of the manner in which insects can carry or cause disease, of some necessary steps in any attempt to prove insect transmission or causation of disease, and a general survey of the needs of entomological sanitation in America. In treating of the important groups, a chapter is devoted to the disease transmitted by each, followed by chapters on biology and control. The several groups thus dealt with are the non-bloodsucking flies, the bloodsucking flies, horse flies and mosquitoes, lice, fleas, cockroaches, bloodsucking bugs, and mites and ticks, respectively.

A chapter on the relation of insects to the parasitic worms of vertebrates, by Dr. Brayton H. Ransom, Secretary of the American Society of Tropical Medicine, includes a compendium of the insects and their known worm parasites, arranged according to insect hosts.

In the closing chapter the editor has tabulated and condensed into 24 pages the status of knowledge regarding the relation of insects to disease transmission. Such diseases are arranged alphabetically, with their causative organism, insect transmitter, method of transmission, rôle of the insect concerned, whether a parasite, intermediate host, mechanical carrier, etc. Its preparation could only have been accomplished by an untiring search through

*The specialists collaborating with the editor include H. A. Ballou, F. C. Bishopp, A. N. Caudell, C. T. Greene, R. H. Hutchison, E. W. Laake, G. H. Lamson, Jr., B. H. Ransom, and J. L. Webb.

the literature with the collaboration of specialists.

In concluding remarks the author emphasizes the fact that a large proportion of the cases of insect transmission are not by the bite but rather through the feces of the insect. Thus any insect which visits excreta or which visits food or the person of man or animals is to be considered a suspicious object in a disease transmission inquiry.

A copious list of references accompanies most of the chapters. We have noticed very few typographical errors, for which the editor and publishers are to be commended, especially in view of the many scientific names that appear. The illustrations are well chosen but might well be added to. A well prepared and complete index makes the matter readily accessible. The price, which is $10, is unduly high and will prevent many who should, and otherwise would, from adding it to their working libraries.

The volume is dedicated to Dr. Leland Ossian Howard, Chief of the Federal Bureau of Entomology, one of the first to emphasize the importance of sanitary entomology, the author of numerous writings on the subject, and the senior author of that monumental work "The Mosquitoes of North and Central America and the West Indies."

The work is a valuable contribution to this branch of medical science and should be on the bookshelf of every sanitarian.

WILLIAM A. HOOKER, D. V. M.

✠

History of Medicine. *Fielding H. Garrison, A.B., M.D. Philadelphia and London: W. B. Saunders Co., Third edition. pp. 942. Price $9.00.*

The history of medicine, like history in general, is chiefly a chronological narrative of its leaders and pioneers. There may be such a phenomenon as mass intelligence which directs and creates history, but there are students of mankind who, impressed with the weaknesses and credulities of the people, are inclined rather to speak of it as mass stupidity or inertia—an inertia which can be moved or overcome only by great leaders. Added to this is the difficulty of discriminating between true and false leaders, for the quality of leadership is not necessarily identified with fundamental truth; hence the march of progress is not always in a forward direction. Medicine, though still largely an art, is tending more and more toward the scientific. The science of medicine has today perhaps reached the highest point in its history. In a half century from now we shall probably look back with pitying scorn and derision on present-day medicine as a weak, haphazard makeshift, cluttered with outworn theories, prejudices and errors. That will but be a case of history repeating itself. In reading Dr. Garrison's interesting record of events, one is impressed with the constant change of attitudes, practices and beliefs which have swayed medical men and the people generally, from the beginning of the art of healing to the present day. The unsympathetic or cynical critic of scientific medicine may find much in the record of medical progress over which to chuckle. But the truth is that whenever a genuine, proved fact has been added to the paltry store of human knowledge, it has stuck fast and has made its impression on knowledge as a whole. This encouraging bit of observation stands out like a red strand throughout the general fabric of Dr. Garrison's interesting narrative.

The author shows also that medical progress has not advanced in a straight line but rather in circles. The almost periodic reappearance, in different form, of theories originally evolved by the ancients or even by prehistoric man is striking. For example, the "doctrine of signatures," which early stirred the imagination of man, was revived again and again, in astrology, in the lore of amulets, in alchemy, in the bizarre mixture of truth and mysticism of Paracelsus, still later in the homeopathy of Hahnemann and in many of the modern healing cults, while vestiges of the doctrine still exist no doubt in the latest edition of the *Pharmacopea*. Happily, however, these repetitions represent not a true circle ending nowhere but rather a spiral constantly tending upward.

Medical progress, Dr. Garrison shows, is a process of evolution. While new bits of knowledge are constantly being added, other portions of the structure which have proved false or useless are eventually sloughed off, tending ever toward greater perfection.

The public-health worker in reading this book must be impressed with the modern trend of medicine. It seems clear that while curative medicine has long occupied the center of the stage, preventive medicine is now in the wings waiting for its cue, if not already playing the chief rôle.

The present edition of the *History of Medicine* is the third, the original having been published in 1913. It is revised, enlarged, and brought up to date, including happenings in 1920. The illustrations are chiefly reproductions of old medical drawings and manuscripts and the portraits of the makers of medical history. Supplementing the more than 800 pages of description are valuable appendices including a medical chronology, a chapter on "Hints on the Study of Medical History," a comprehensive bibliography, an index of personal names and a subject index. The author gives special credit to that wonderful storehouse of medical writings maintained by our government in Washington saying: "This book is, in a very real sense, a product of the Surgeon General's Library, and I desire once more to thank the successive librarians of this great institution for their encouragement and their generosity in the loan of books and graphic material."

H. E. Kleinschmidt, M. D.

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The Healthy Baby—The Care and Feeding of Infants in Sickness and in Health. *Roger H. Dennett, B. S., M. D., New York. Macmillan Company, 1922. Second Edition. Pp. 247. Price, $125.*

It is just ten years since the first edition of Dr. Dennett's book appeared. During the past decade there has been a remarkable growth of interest in the care of mothers and babies. During that time a number of excellent books on the care and feeding of infants have appeared, among them being books by Drs. L. Emmett Holt, S. Josephine Baker, Richard Smith and Walter R. Ramsey. Dr. Dennett has greatly improved the second edition by omitting a number of the complicated formulas which appeared originally. He has given in the present volume just enough simple dilutions to assist the mother who is feeding a normal baby. He admits that "feeding bottle babies is one of the most difficult things we have to deal with." Dr. Dennett's outline of the development of a normal baby and its hygiene and training should prove very helpful to mothers. He is somewhat dogmatic in his statements, but this may be necessary in the treatment of the subject as he gives it for the mothers, it being impossible to go into differences of opinion held among pediatrists in regard to infant feeding.

It is unfortunate that the impression is given that normal babies should always be fat. It is, however, to his credit that he emphasizes the necessity for constant, though not necessarily great, gains in weight. Dr. Dennett is unequivocal in his emphasis upon breast feeding. It is to be doubted whether it is advisable definitely to tell the mother that a breast-fed baby may have a bottle or two during the day. Dr. Dennett urges that for the sake of the mother it might be desirable to allow the baby to get used to a bottle feeding once or twice a day, but if the baby is on regular four-hour feeding periods, it is questionable whether such a bottle is necessary. Dr. Dennett advises the longer periods between feedings.

It is questionable whether the tables of heights and weights as given in the appendix and the number of pulse beats and respiration per minute are advisable to give to the mothers in this form. On the whole, however, his book is a great improvement over the first edition and should meet with a good reception on the part of the public.

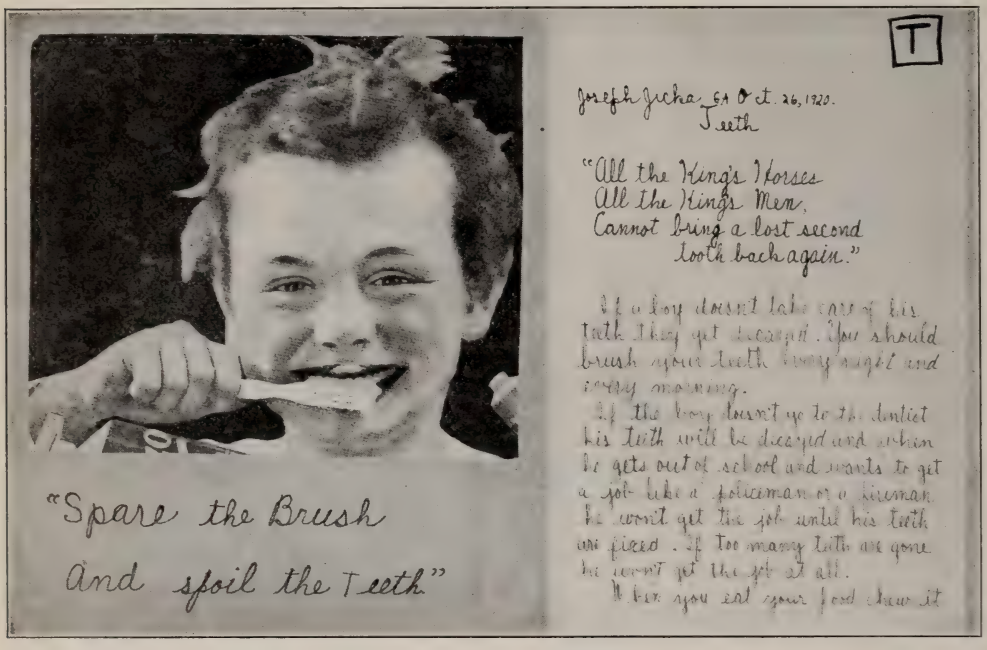
Richard A. Bolt, M. D.

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Mosquito Eradication. *W. E. Hardenburg, New York. McGraw-Hill Book Company, Inc., 1922. Pp. 248. Price $3.00.*

During the past decade or so antimosquito activities have come to be recognized as an important phase of public-health work. With this realization has also come a great increase in such efforts. Generally speaking, the antimosquito expert must have a knowledge of sanitary engineering, entomology, and ichthyology as applied to his duties, as well as that essential in all public-health work, the ability to cope with human nature. As far as we are aware, there has never previously been published a manual giving complete but condensed information on all these points; so the author is the pioneer in this field of literary endeavor. The twelve chapters of the book take up the toll of the mosquito, describe disease-bearing mosquitoes of America, outline the historical aspects of mosquito control, tell how to initiate the campaign, how to administer it, once started, describe inland and salt marsh drainage, oiling, fish control, screening, and other measures requiring investigation, and finally, the rural side of mosquito control. A table to determine various species, an approved antimosquito ordinance, a suggested popular leaflet, a bibliography and an index complete the

volume. The author has given a thorough exposition of mosquito eradication measures, with, naturally, considerable emphasis on the engineering side. The reviewer would like to have had this book at hand during the war when, like many others, he was placed in charge of extensive antimalarial work without having had much previous experience in that line. The book will be useful indeed to all who are engaged in antimosquito work, and should prove of value to other sanitarians who must deal with this problem. J. A. T.



Facsimile of one of the compositions

Many Roads to Health. *Mary K. Moriarty. New York: Child Health Organization of America, 1922. 28 illustrations, pp. 64. Price 25 cents.*

This book is made up of facsimile reproductions of compositions and poems by children of the open-air class of Public School No. 158, New York City. There were 26 children in the class from the fifth and sixth grades, all underweight and unable to continue work indoors. Each child kept a notebook and illustrated it according to his own ideas with advertisements from magazines and newspapers as each subject was considered, covering proper foods for children, the value of fresh air, exercise, cleanliness, the care of the teeth, and the necessary amount of rest. The most interesting papers were read aloud and the best one on each subject entered in the class health book. *Many Roads to Health* comprises those chosen by the pupils, and should prove of interest to other teachers and pupils. Health was not taught in this school as a separate subject, but wove itself into and around the other studies, which were by no means neglected. The book was a means of self-expression for these children, and proved a source of great pleasure to them, as well as furnishing a way of getting across to the children valuable health information. In the back of the book is an interesting table, kept by the children themselves, covering each child's gain during the term. Every child in Miss Moriarty's class passed the tests for promotion at the end of the year.

PUBLIC HEALTH NOTES

Abstracted by D. Greene, M. D., James E. Tobey, LL.B., Homer N. Calver and Mayo Tolman.

Medical and Public Health Education in the United States.—The *Journal of the American Medical Association* for its twenty-ty-second consecutive year publishes statistics regarding medical and public-health education in the United States. The total number of medical students for the year ending June 30, 1922, was 16,140, an increase of 1,268 over last year. The total number of graduates was 2,529, a decrease of 663 over 1921. This year 57.5 per cent of all graduates held collegiate degrees, as compared with 46 per cent last year and with 15.3 per cent in 1910. During the past year there were 989 women studying medicine, or 110 more than the previous year. It is to be noted that the number of students enrolled in Class B and Class C colleges has been reduced.

Graduate courses in public health have been established in connection with 11 medical schools, the first of which was at the University of Pennsylvania in 1909, the latest is that in connection with the medical department of Howard University. Yale University established its course in public health in 1917. Two universities, Colorado and Tulane, suspended their courses in 1918. Seven of the schools have courses leading to the degree of doctor of public health (Dr. P.H.) after a two-year course, and one (the Detroit College of Medicine and Surgery) offers it after a one-year course. The degree of master of public health (M.P.H.) is offered after a one-year course by the University of Wisconsin Medical School. The University of California offers the degree of graduate in public health (Gr. P.H.) after a two-year course. After a one-year course the degree of certified sanitarian (C.S.) is offered by the University of Pennsylvania and Howard University to graduates of colleges of arts and sciences. Six of the schools grant a certificate in public health (C.P.H.) after a one-year course. The master in arts in public health (M.A.P.H.) is offered by the University of California Medical School, and the master of science in public health (M.S.P.H.) by the University of Michigan and by Howard University.—*Jour. Amer. Med. Assn.*, Aug. 19, 1922 (*D. G.*)

State Medicine From a Health Officer's Viewpoint.—In parts of continental Europe state medicine is an accomplished fact, while the great Anglo-Saxon nation from which we sprang is even now in the midst of a comprehensive experiment on a national scale. In speaking of state medicine, we see consultants, specialists, general practitioners, nurses, midwives, clinics, dispensaries and hospitals supported by the state, with sick benefits, maternity benefits, food allowances, and other material assistance, all combining to give relief to that portion of the community receiving the smallest compensation for its labor. But, stripped of its paraphernalia, is it not fundamentally the application of the simple proposition that every benefit of the art and science of medicine should be made available to all of the people? It is simple when we look at it that way, and a doctrine to which we can all subscribe. The real fear is not the principle but the mode of application. We agree that there are some who cannot afford adequate medical care, but when it comes to determining just who these people are, there is no agreement. Nor is there much provision made for them, once they are sifted out, save through charity.

It is no wonder that a social movement should arise. The public has begun to distinguish good medical care from the indifferent sort, and it has been realized that the best treatment is obtained in the hospitals, and that only the very wealthy or the very poor can obtain the best, leaving the great self-supporting middle class with the choice of mediocre service or the possibility of mortgaging their future to obtain the services of good physicians.

The great trouble is that we do not suit the charge to the patient's means; it is the fee list or nothing, and the wage-earning middle class do not want charity, but to pay reasonable charges and maintain their self-respect. Fortunately, the problem has been recognized in some quarters and scattering attempts are being made to solve it. A notable example is the pay clinic, which is found in some of the larger cities, where a person of moderate means may receive expert attention at specific hours and for fees

within the limits of his purse. However, at present such efforts are too desultory to make any real impression, and only serve to emphasize the problem. What is needed is a thoroughly organized movement on a national scale, within the medical profession itself, to remedy the need before the initiative is taken entirely from medical hands, for there is hardly a health campaign of any kind which has not been sponsored largely by laymen, whether it be child health, tuberculosis or any other sort of social betterment.

It is unfortunate that the physician is so intensely individualistic, focusing his attention upon his small round of activities and failing to see his case multiplied by thousands. There is no reason that we should sit supinely by and see our prerogatives snatched from us. Is it not the prerogative of the profession to act as the expert adviser to the world on the causes and cure of disease? This does not consist of selecting our patients and leaving the rest for someone else, for by doing this we leave the opportunity and open the way for inexpert hands to seize the reins. We are compelled to think of the group rather than the individual.

The health departments have taken upon themselves some of the prerogatives that really belong to the medical profession, but which have been neglected by them. Free clinics, health centers, and the like, are merely attempts to meet a social need that was urgent and that had not been met by the organized profession. Instead of being a bone of contention, these things should form a nucleus about which a comprehensive plan for adequate non-compulsory medical care of the whole population might be built. Could not each local medical society form itself into something in the nature of group practice handling every therapeutic need of the community, while the health department dealt with its own specialty of prevention?

It would not be so difficult a thing to take over the free clinics, and upon these could be built the pay clinic with its specialties and expert consultation, all for a moderate fee which could go into a common fund for the payment of fixed salaries to attendants. Beyond this is the great field of preventive medicine where the physician and health officer meet on common ground. Such coöperation would require much time and thought and close agreement, but it is worth it. Rather than wait and let some one force some obnoxious scheme upon us, let us face our problem squarely and work out our own solution, meeting the growing demand with a practical program of health and healing which shall be for all people.—Dr. G. S. Luckett, State Director of Public Health, Santa Fe, New Mexico.

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The Health Builder.—A new publication, entitled the *Health Builder,* is announced by Doubleday, Page & Co. They plan to make it an authoritative treatment for the lay public of all phases of good health, particularly personal hygiene, exercise, correct eating, recreation, the avoidance of disease, and the proper care and training of children. It will teach the importance of proper exercise, and cover the bodily well-being of all ages, giving special attention to the health of babies and older children.

It will not, according to the publishers, be the exponent of bulging biceps, nor encourage self-treatment of real or fancied ailments; nor will it pander to those aspects of the subject that have so often accompanied the commercializing of health building.

Contributors to the first issue, out October 1, include Dr. C. Ward Crampton, Surgeon General H. S. Cumming, Dr. Eugene Lyman Fisk, Miss Clara D. Noyes, Dr. Virgil P. Gibney, Surgeon General Merritte W. Ireland, Walter Camp, Dr. Minor C. Hill, Dr. Richard Derby and Paul Wilstach.

✠

Improvement of Biological Publications.—At the conference in Washington April 23, called to consider the question of coöperation or federation among biological societies, considerable discussion was devoted to the problem of improving biological publications, a question likely to come before the council if the plan of federation shall be adopted. This problem was of such importance that it was deemed advisable by the conference to take some action without waiting for the establishment of the federation. Therefore, a special committee was appointed to study the whole question of biological publications and report to the conference, or to the federation if formed. The personnel of this committee is as follows: A. P. Hitchens,

Army Medical School; I. F. Lewis, University of Virginia; C. A. Kofoid, University of California; D. R. Hooker, Johns Hopkins University.

Among the biological organizations represented at the recent meeting were the American Association for the Advancement of Science, Section N (Medical Science), Society of American Bacteriologists, Entomological Society of America, American Dairy Science Association.—*Science,* August 18, 1922, p. 185.

✠

Dr. George Milbry Gould, known for his work in medical ophthalmology and especially in eyestrain, formerly editor of *American Medicine, Biographic Clinics* and the *Gould Medical Dictionary,* died on August 8, aged seventy-four years.—*Science,* August 18, 1922.

✠

Alexander Righter Craig, M.D., secretary of the American Medical Association since 1911, died July 31 at Port Deposit, Md., at the age of 54 years. He received his A.B. degree from Franklin and Marshall College, Pennsylvania, 1890, the A.M. degree in 1893 and M.D. from the University of Pennsylvania in 1893. In 1920 he was granted the honorary degree of doctor of science by Franklin and Marshall College. He spent a number of years practicing in Philadelphia, part of that time being connected with the Polyclinic Hospital. He served Pennsylvania in the House of Delegates of the A. M. A. from 1903 to 1910. At three different sessions of the Association he was chairman of the committee on amendments to the constitution and by-laws. Since 1911 he has devoted his entire time to the work of the Association. He was executive officer of the Council on Scientific Assembly and of the Judicial Council, in which position he showed the exceptional tact for which he was known. Dr. Craig was active in religious and social work, and his loss will be severely felt in the circles of progressive medicine.

✠

Sir Patrick Manson.—The death of Sir Patrick Manson, the distinguished parasitologist and teacher of tropical medicine, occurred April 9, 1922, in London. He was born in Aberdeenshire, October 3, 1844, was educated at Edinburgh and at the University of Aberdeen, where he was graduated in medicine in 1865. In 1866 he went to Formosa to act as medical officer to a group of merchants and missionaries. Afterward he went to Amoy, in China, where he acted as medical officer to the Chinese maritime customs and was in charge of a large native hospital. He spent many years in working out the life history of filaria. In 1885 he founded a medical college for the Chinese in Hongkong. In 1913 Sir Patrick Manson retired from active practice, but continued his interest in the conduct of the London School of Tropical Medicine and the progress of his special branches of science.—*U. S. Naval Medical Bulletin,* August, 1922.

✠

County Welfare Boards Promote Child Care in Rural Communities.—The most recent administrative advances in the local care of dependent, defective and delinquent children are described in a report just issued by the United States Department of Labor through the Children's Bureau, entitled "County Organization for Child Care and Protection." Administration of care for neglected, handicapped or delinquent children by local boards of citizens, employing trained workers and aided by state boards, is, according to the report, the plan which is gaining approval in a constantly increasing number of states.

In the past the development of preventive and constructive activities for children in rural sections usually depended on some private individual or group assuming the financial obligation, but today county commissioners in many states are finding it sound economy to make an appropriation for this purpose. The recent rapid growth of county welfare work has come about largely as a result of the development of state-wide plans, but local organization is usually put into effect only after the county has indicated a desire for it.

Securing of executives or superintendents trained for such work is said to offer the greatest difficulty in connection with county organization. State universities, however, are preparing students to take up this career, and state boards make possible the interchange of experience through conferences, publications and other means. In the country the welfare worker has to be a general practitioner, but he must have knowledge of the standard practice in the various fields

of child welfare work as well as the understanding and common sense necessary to adapt these methods to rural conditions.

In counties of small population or those possessing agencies whose work already covers a part of the field, the care and protection of children may be combined with public-health nursing, enforcing school attendance, preventive and reconstructive work with families, including poor relief, and supervision of persons on probation or parole. In others the task is extensive enough to warrant dealing separately with each of these groups of activities, but the general tendency is in the direction of broad, coördinated programs.

✠

Delano Fund Assigns Nurses to Alaska and Maine.—The first two Red Cross nurses to engage in a missionary form of service provided for in the will of the late Jane A. Delano, who died in France while director of the nursing service of the American Red Cross, have been detailed for duty in Alaska and in the islands off the Maine coast. Miss Bertha R. Steeves, formerly superintendent of the Ottawa, Canada, hospital, and long in nursing and settlement work, has been selected for the Alaskan field. Miss Stella Fuller, a graduate of the Milwaukee Training School, who served with the A. R. C. in France during the war, takes up the work in Maine.

The conditions of the bequest require that the nurses selected be so situated that demands of dependents will not interfere with their work. In addition to being enrolled Red Cross nurses, candidates for the distinction must have had two years' experience in public-health nursing, be qualified to teach, and be not less than thirty years old. Miss Delano's purpose in endowing this special service as a memorial to her father and mother was to create nursing facilities in isolated districts where no funds are available from governmental or other agencies or from individuals.

The Delano nurses will be under the supervision of the American Red Cross.

✠

Red Cross to Make Indian Health Survey.—In order to test the feasibility of public-health nursing and general welfare work on the Indian reservations, the American Red Cross is inaugurating a survey among the Navajo, Pima and Popago and other smaller reservations in Arizona, New Mexico and South Dakota. This work is being done at the request of Charles H. Burke, U. S. Commissioner of Indian Affairs, and will cover one year.

Mr. Burke, having in view the improvement of health conditions among the Indians, and a demonstration of organized service among the various tribes to prove whether it is possible to instruct Indian mothers particularly in health methods, urgently requested that the Red Cross assign trained personnel to the task.

Three Red Cross nurses have been assigned to the survey and the American Red Cross has appropriated $9,000 to cover their salaries and expenses, the government furnishing only quarters and transportation within each reservation. The superintendents of the Indian reservations, according to Mr. Burke, are keenly interested in the health survey and offer the fullest coöperation with the nurses. The progress of the work will be reported from time to time and at the end of the survey an exhaustive report of the findings will be submitted.

✠

Commission of Immigration and Housing of California.—In 1914 a small booklet on the subject of the sanitation of labor camps was published. In 1915 the state legislature amended the Labor Camp Sanitation Law and placed its enforcement in the Commission's hands, but the Commission preferred to act in its original capacity of adviser, resorting to legal force only when other methods failed. The call for the booklet was so great from all parts of the country, even necessitating a Japanese translation, that in October, 1921, a new booklet was issued covering practices which in the meantime had gone far beyond former written instructions. This new book makes suggestions for the location and the layout of camps. There are many sketches showing plans for the erection of sleeping quarters, dining tents, baths, systems of irrigation and sewage disposal, proper ways of erecting privies and stables. Each illustration gives a bill of material required.

✠

The Hospital Library and Service Bureau, 22 East Ontario Street, Chicago, issues bibliographies for the use of hospital and

public-health workers. In response to requests, bibliographies have been compiled on numerous subjects, among which are the following:

Child and infant welfare.
Community hospitals.
Dental clinics.
Dispensaries.
Group medicine and diagnostic clinics.
Industrial hospitals.
Isolation hospitals and wards for infectious and contagious diseases.
Laboratories.
Occupational therapy.
Public-health hospitals.
Public-health nursing.
Publicity campaigns.
Schools for nurses.
Social service.
Tuberculosis sanatoria.
Vaccination.

The bibliographies are distributed free of charge, and will be made upon request on any subject coming within the scope of the library.

✠

Meharry Medical College Offers Post-Graduate Work.—The colored medical profession has enthusiastically welcomed the opportunities offered this year at Meharry Medical College, Nashville, Tenn. On July 3 a post-graduate department in surgery, clinical pathology and microscopy was opened for those wishing to take advanced work. On August 11 the first graduates from this department received certificates. Dr. W. S. Quinland, formerly assistant in pathology at the Peter Bent Brigham Hospital, has been appointed head of the department of pathology of Meharry. The college is now in a position to train more negro graduates in medicine and public-health subjects.

Through the generosity of the General Educational Board of the Rockefeller Foundation and the citizens of Nashville, the college was able to keep its hospital open throughout the year, instead of closing during the summer as previously has been the custom. There has recently been installed a Victor X-ray machine, and many other changes and additions have been made. John J. Mullowney, M.D., president of the college, is endeavoring in every way possible to interest the alumni of the college in enlarging the endowment and increasing the scope of the work done.

✠

World Metric Standardization Conference.—At the conference on World Metric Standardization in Pittsburgh, there were twenty or more organizations represented and the discussion was an interesting one.

A resolution recommending the gradual adoption of the metric system as a practical procedure was passed. Resolutions requesting information in regard to the use of the metric system in other countries from the Secretary of Commerce, Mr. Hoover, and recommending the better teaching of the metric system in the schools were also adopted. The lack of satisfactory teaching of the metric system in all schools and colleges was very fully discussed. It was thought that an improved system of teaching would do more to further the metric system than any other procedure. The compulsory adoption of the metric system was not favorably considered. A motion requesting the Secretary of Commerce to secure information regarding the cost of changing to the metric system was tabled. Apparently there is a general committee of representatives of organizations of national scope which has the business of furthering the establishment of the metric system in hand. This information was brought out by Mr. Cummings of the Society of Civil Engineers. It was not considered wise to encourage the work of two organizations for the same purpose, so nothing was done in regard to the permanent organization of the conference.

✠

Tuberculosis Among Ex-Service Men.—A general impression prevails that the incidence of tuberculosis was greatly increased in the United States by the World War. This current idea undoubtedly arose as a result of the wide publicity given to the difficulties encountered in providing sanatorium treatment; perhaps also to the increase in tuberculosis which occurred in most of the countries of Europe. The author points out that the incidence of tuberculosis was, however, only slightly increased in the United States during the war, either among males of military age or any other class of population. A curve shows the steady decline of tuberculosis mortality from 1915 to 1921. There is a slight rise in 1916 and

1917, presumably due to the increase in living costs, and another in 1918 due to the epidemic of influenza. There seems little doubt that these increases were not related to actual participation in the war. The author further describes the work done by the United States Public Health Service in caring for the ex-service men.—H. S. Cumming, *Jour. Amer. Med. Assn.*, July 29, 1922, 370 (*D. G.*).

✠

Migration of Hookworm Larvae in Soil.—Experiments carried on in Trinidad showed that infective hookworm larvae placed on moist soils do not migrate in periods of from 15 hours to 42 days. Experiments show that hookworm larvae may be carried out from centers of soil infestation by surface water, and that they can establish themselves in the new locations when the water recedes. Hookworm larvae were not found to migrate to favorable situations when their original environments become unfavorable. Soil scraped from the shoes of men passing through an infested area was found to contain hookworm larvae. It is possible that paths leading to such areas, as well as the immediate surroundings of dwellings, become centers of infestation by the dropping of such soil. During the time the larvae remained in the soil there occurred a reduction in their numbers, which increased with the number of days the experiment lasted.—D. L. Augustine, *Amer. Jour. of Hygiene*, March, 1922, 162 (*D. G.*).

✠

The Spread and Mode of Infection of Leprosy.—Sir Leonard Rogers has collected 700 recorded instances where the probable source of infection of leprosy was traced. Analysis of these showed nearly one-fifth to have been through conjugal relationship or cohabitation with a leper, two-fifths with house or bed infections, nearly one-fifth arose from attendance on a leper, and the same proportion from close association with a leper, including children playing with leper children, and a few from infection by a leper wet nurse, a leper's clothes, vaccination from a leper, or other methods of inoculation. The opportunities for such close contact with a leper usually extended over a long time. A striking feature of the analysis was that in no less than 27 per cent there was a history of sleeping in the same bed as a leper before the disease was contracted, while about four-fifths of the total cases were examples of house infections. The exact way in which the bacillus passed from case to case was unknown, but a number of authoritative writers considered inoculation the usual method, probably through an accidental abrasion of the skin or mucous membrane.

The frequency with which leprosy affects the nerves of the lower extremity in countries where people go barefoot, and a case of leprosy apparently contracted by wearing the clothes of a leper, also support the inoculation theory. There are two cases on record of doctors developing leprosy in a hand inoculated during operations on lepers. Concerning prophylaxis it is very desirable to separate infective cases of leprosy from contact with the healthy, especially children and adolescents between 5 and 20 years of age. At present the more effective treatment of leprosy by injection of soluble preperations of the unsaturated fatty acids of chaulmoogra, cod-liver, soya bean, and other oils, has already given sufficiently favorable results to have led early cases of leprosy to come forward in Hawaii and India to ask for the new treatment.—*Lancet*, July 1, 1922, 17 (*D. G.*).

✠

On the Cost of a Dental Program.—Various agencies, both public and private, which are planning dental programs, will find the figures recently issued by the Association for Improving the Condition of the Poor of New York City of interest to them. For over two years this organization has been carrying on such a program with the coöperation of the health and education departments of the city in a congested district of 35,000 population. The activities at this clinic consisted of prophylactic cleanings, extraction of diseased teeth, prophylactic fillings in all first permanent molars, and reparative fillings where needed in first molars, and nitrate of silver treatments to arrest decay in temporary teeth. The total cost was $4.13 per child per year. This includes several hundred dollars for permanent equipment, which if deducted brings the cost to about $4.00 per child. The cost per cleaning is $0.66. The cost per completed filling is approximately $0.64. Some time, however, was given to silver of nitrate

treatments and a little to extractions, and with these corrections the cost per filling would be about $0.70 per filling. No figures are given for the cost of extractions.—J. C. Gebhart, *Medical Officer,* June 10, 1922, 245 (*D. G.*).

✠

Germany Adopts a Child Welfare Law.—Germany adopted a national child welfare law on July 9, 1922, according to a note in the *Weekly News Summary* of the U. S. Children's Bureau of September 16, 1922. This law proclaims the right of every German child to proper physical, mental and moral education to be provided by the state if the parents cannot do so. Placed-out children and illegitimates would be supervised and needy children given public aid. The law goes into effect on April 1, 1924, and will be administered by local and state children's boards under the supervision of a national children's bureau. The United States Children's Bureau gets this information from a reprint of the text of the law.—(*J. A. T.*)

✠

Advance in Medical Education in China.—The annual report of the China Medical Board of the Rockefeller Foundation, which has just been published, together with the recent announcement from Peking that the Board has given $125,000 each to Southeastern University at Nanking and Nankai College at Tientsin for science buildings and equipment, calls attention to the significant fact that the Chinese themselves are beginning to assume responsible leadership in the teaching of modern science and its application to medical education and programs of public health. Southeastern University is a government institution, located at Nanking, the old southern capital of China. Nankai College, in the north, is a private institution receiving provincial aid. Both furnish excellent examples of what the Chinese themselves are now doing in modern education, financed with Chinese money and with the teaching and management entirely in Chinese hands. Appropriations have heretofore been made to the pre-medical work of five mission colleges, as well as to a large number of mission hospitals in China. Those now announced are the first gifts for pre-medical teaching that have been made to institutions under purely Chinese auspices.

The year 1921, the seventh of the Board's work in China, was marked by the completion of the main buildings of the Peking Union Medical College, the only institution for which the China Medical Board has thus far assumed complete financial responsibility. The college seeks to point the way by which the future system of Chinese medical education may be adapted as well as possible to the actual conditions in the country. If the hopes of its founders are realized, it will graduate a select group of leaders in medical education, in research, and in public-health administration, and a larger number of useful practitioners of medicine and surgery.

Aid was continued during 1921 toward the current expenses of three medical schools wholly or partly under mission control—Hunan-Yale College of Medicine, Shantung Christian University School of Medicine, and the Pennsylvania Medical School of St. John's University of Shanghai.

The experience of the Board in the past seems to indicate that the most effective way to aid the hospitals in China is to improve and extend the facilities for training of doctors, nurses, and technical workers of various kinds who cannot now be found in adequate numbers in China or abroad, even when funds for their support are available. Since the China Medical Board began its work in 1915, grants have been made to mission hospitals to enable them to improve their work, through additions to plant and equipment or through increases of staff and maintenance appropriations. In 1921 payments were made to sixteen such institutions, amounting to $123,986.

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Automobile Exhaust Gas As a Health Hazard.—In connection with the construction of the vehicular tunnel under the Hudson River, a commission was appointed to study the effects of the exhaust gas produced by the various cars, and to determine the allowable amounts not involving appreciable ill effects when such gases are breathed. A series of experiments was conducted on a group of volunteers, and as a result of this an allowable vitiation, not exceeding 4 parts of carbon monoxide in 10,000 parts of air, is recommended as a practical standard for vehicular tunnels. The results noted are also of interest in connection with the hazard from carbon monoxide which occurs in automobile garages, particularly the small private ones, and from the use of gas for cooking, heating and lighting purposes. An in-

crease in the number of the fatalities from exhaust gas and from illuminating gas asphyxiation has been reported. Concerning the treatment of asphyxiation from this gas, it has been determined that a deeply asphyxiated patient who can be reached within half an hour, and who is then given inhalations of oxygen containing 5 per cent carbon dioxide, can be practically freed from carbon monoxide within 30 to 40 minutes. Frequently also consciousness returns.—Y. Henderson, *Boston Med. and Surg. Jour.*, Aug. 3, 1922, 180 (*D. G.*).

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The Effect Which Colors Exert on the Mind.—The Deutsche Gesellschaft für Licht und Farbenforschung of Munich has published for schools, sanatoriums, hospitals, etc., a series of charts with which to teach by the object method what has been ascertained in regard to the hygiene of colors. In order to understand the psychology of colors and to make proper use of them in interior and exterior decoration it is necessary to become familiar with the effects that they exert on the mind, and more particularly the emotions. White makes a room larger and lighter, but it appears cold and empty. A crimson hue imparts an air of delicacy. Children in a room with crimson-tinted walls and light that passes through crimson shades work eagerly and more than usual. Yellow makes a room appear to be flooded with light, gives the feeling of sun warmth and produces a sense of comfort. Otherwise dingy rooms are enlivened and made more cheerful by yellow wallpaper. Orange exerts the most marked warmth-giving effect and disposes to cheerfulness. Orange colored curtains in a bedroom produce a tinting effect that has a stimulative influence on the nerves. Red is the color that best represents spontaneous youthful joy, but it is the hardest on the eyes. A pure neutral red causes unrest; persons inclined to melancholy are put in a livelier frame of mind, but persons who are nervous should avoid red. Violet exerts a depressing effect. Blue has a calming and soothing effect. Patients will sleep better with a night-lamp, if provided with a blue shade, than they will in the dark. Green has a calming influence. Gray, if it covers a wide area, is barren and dreary. Persons become depressed in such dingy rooms and give evidence of lack of interest in their work. Especially patients are likely to be thrown into an unhappy frame of mind by dark and somber surroundings. Even though these conclusions may not be universally true, they at least deserve attention in the furnishing of our homes, and especially of hospital wards.—*Jour. Amer. Med. Assn.*, Aug. 19, 1922, 672 (*D. G.*).

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SANITARY ENGINEERING

Ventilating Code Submitted for Approval by A. E. S. C.—The code for the ventilation of public and semi-public buildings adopted by the American Society of Heating and Ventilating Engineers in 1915 has been submitted to the American Engineering Standards Committee for approval as American Standard.

This code was prepared by a committee of the American Society of Heating and Ventilating Engineers in response to requests from state commissions, legislative bodies, public-health agencies and other organizations for suggestions to be used in the preparation of legislation and regulations regarding the heating and ventilation of buildings. The committee endeavored in this code to cover the general features most essential to the public health, in such a manner as to protect the public with the least possible expenditure for equipment and without unnecessarily limiting the methods of obtaining the desired results.

Section 1 of the code relates to general matters pertaining to all classes of buildings; the remaining three sections relate to schools and colleges, factories, and theatres, respectively.

Among the states that have utilized parts of the code in their regulations are: Illinois, Indiana, Kansas, Massachusetts, Minnesota, New Jersey, New York, Ohio, Pennsylvania, Utah, Virginia and Wisconsin. A thoroughly representative special committee, including all the important organizations interested in the subject, has been appointed by the American Engineering Standards Committee to investigate the status of the code in the industry and the desirability of approving it. Sidney J. Williams, chief engineer of the National Safety Council, is chairman of this special committee.

The American Engineering Standards

Committee would be very glad to learn from those interested, of the extent to which they make use of this code, and to receive any other information regarding the code in meeting the needs of the industry.

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Health in the Near East.—Early this year a committee, appointed by the Health Organization o fthe League of Nations, visited the Near East. Their report is largely technical, dealing with the modifications proposed in Parts I and III of the International Sanitary Convention of 1912, and deals particularly with the sanitary barrier around the Suez Canal, the difficulty of the non-Moslem countries enforcing sanitary measures within the Hedjas in connection with the annual gathering of pilgrims at Mecca; the epidemic diseases in Syria and Palestine, showing the enormous expenditure of time and money caused by the overlapping of inspections by the different sanitary authorities and the danger to the western world owing to the lack of sanitary accommodations for cases of infectious disease at Constantinople. *Hospital and Health Review* (London), 1:305, August, 1922.

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Fighting Insect-borne Diseases.—The Imperial Bureau of Entomology publishes each month the "Review of Applied Entomology," which deals with insects, the disseminate human and animal diseases. It summarizes all the papers or books concerning insects of economic importance published in any part of the world in any language. The Bureau has sent investigators to tropical Africa, who have done excellent work in connection with disease carrying insects. *Hospital and Health Review* (London), 1:307, August, 1922.

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Public Health and the House Fly.—That the campaign against the house fly conducted for many years by the York (England) Health Department has been effective, is shown by the absence in hot summers of a plague of flies, and by the decrease in typhoid fever. During the last three years an average of only 6 genuine cases were reported in the city as compared with an average for the five years 1909-1913 of 32, for 1904-1908 of 61 and for the year 1900 a total of 244. *Hospital and Health Review* (London), 1:307, August, 1922.

Improved Financial Condition of Water Works.—The records of 45 publicly and privately owned plants indicate that the water works of the country are past the period of acute distress due to the war, but that they have not yet made good the cumulative losses of the war period. The maximum reduction of efficiency was probably at least 50 per cent at the worst period. The average price of labor in 1921 was 94 per cent in excess of 1915 prices. Cast iron pipe is twice the pre-war price. The fluctuations in the prices of valves and hydrants were much less marked than were those noted in the case of cast iron pipe. The actual growth in net revenue has been about one-half for the growth in population and service and the average net return is slightly below the normal pre-war basis. While many works have been granted increases in rates they will have to be still further increased if desirable standards of service are to be maintained. Leonard Metcalf, *Public Works,* 52:388, May 27, 1922.

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The Use of Chlorine to Remove Bad Tastes from Water.—The usual experience has been that when microscopic organisms gave a taste to water an application of chlorine made the taste worse. William W. Brust, deputy chief engineer of the Bureau of Water Supply of New York City, however, reports that by increasing the chlorine dosage the microörganisms are destroyed and the tastes removed. This discovery was made during experiments undertaken to remove the taste in the Catskill water caused by Synura. It was found that in general a net increase of 0.1 of a part of free chlorine, as shown by the orthotolodine test on the raw and treated water after about 30 minutes contact was sufficient to eliminate the trouble. *Engineering and Contracting,* 58:27, July 12, 1922.

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What Can Be Done to Secure Adequate Supplies of Pure Water.—Expenditures for waterworks extensions, enlargements, and improvements, are inadequate, largely because the rates are not sufficiently high due primarily to the fact that city councils are dilatory in raising the rates or asking the people to vote for bonds. There is need in most cities for some permanent organization to examine recommendations made by city engineers and waterworks depart-

ments. The average newspaper pays little attention to recommendations made by city officials and the tax payer pays even less attention, with the result that the city drifts from bad to worse until an extreme crisis forces the need of pure water upon the public. Here is an opportunity for local engineering societies to prevent the economic folly of "letting things slide." *Engineering and Contracting,* 58:27, July 12, 1922.

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A New Method of Treating Water with Copper Sulphate to Remove Tastes.—Copper sulphate has proven its efficiency as a destroyer of bad tastes and odors in water due to microörganisms. Formerly it has been the custom to use "bluestone" only periodically and for a short time, but now the supply from Croton Lake is being dosed continuously with 2 pounds per 1,000,000 gallons. While the algae may not be detected in the streams flowing into a reservoir, it is none the less true that it is these streams that contain the spores or seeds of the algae and they should be attacked at the inlet before they have an opportunity to develop, rather than at the outlet, as is now the case, after they have increased to harmful numbers. *Engineering and Contracting,* 58:28, July 12, 1922.

LEGISLATION—FEDERAL

(From bi-weekly reports of the National Health Council, August 15-September 15, 1922)

PROGRESS ON MATTERS PREVIOUSLY CONSIDERED

S. 848. Interchangeable Mileage Tickets.—The bill directing railroads to issue interchangeable mileage tickets having become a law (A. J. P. H., Oct.), the Interstate Commerce Commission will hold hearings on September 26th, preparatory to establishing rates and other standards for these tickets.

Massachusetts Contests the Federal Maternity and Infancy Act.—The Commonwealth of Massachusetts has, by its Attorney General, petitioned the U. S. Supreme Court for leave to file a bill of complaint in a suit between the State and certain government officials, in order to enjoin them from enforcing the act for the promotion of the welfare and hygiene of maternity and infancy, known as the Sheppard-Towner Act. The defendants named are Andrew W. Mellon, Secretary of the Treasury; Grace Abbott. Chief of the Children's Bureau of the Department of Labor; Charles E. Sawyer, Surgeon General of the Public Health Service; John J. Tigert, Commissioner of Education. (Incidentally, Charles E. Sawyer is not the Surgeon General of the Public Health Service and the inclusion of his name as such is an error.)

The original bill of complaint, for which permission is asked to file, sets forth the following items:

1. That three of the defendants constitute the Federal Board of Maternity and Infant Hygiene. No reason is given for joining the Secretary of the Treasury.

2. That the suit is instituted pursuant to an order of the State Legislature for the purpose of restraining defendants from carrying out the Act.

3. That Congress unlawfully assumed a power not delegated to it, but reserved to the states by the Tenth Amendment to the Constitution, when it passed this Act. The provisions of the law are then set out in detail. The argument is advanced that appropriations made under the Act are for local and not national purposes; that the burden of paying for it falls unequally on the states, and that the sovereign powers of the plaintiff are usurped. Action already taken under the law by the Children's Bureau is also set forth.

The petition, which was filed on September 8, 1922, will be considered at the October term of the U. S. Supreme Court which begins on October 2, 1922.

H. R. 7456. The Tariff and Public Health.—The Tariff Bill has been in conference and the conferees reported on September 13.* After some readjustment, rates of 55 per cent on intermediates and 60 per cent on finished coal tar products and medicinals, with a specific duty in each case of 7 cents per pound were decided upon. These rates operate for a period of two years, following which ad valorem rates of 40 per cent and 45 per cent and a 7 cents per pound specific duty have been agreed upon by Senate and House conferees.

These rates are declared by synthetic organic chemical manufacturers to be wholly inadequate and to spell the downfall of the

*The Tariff Bill as reported by the Joint Conference Committee was finally passed by Congress September 19 and was at once signed by the President. A complete statement of its provisions affecting public health will be published in the next issue.

chemical industry in this country. The Tariff Bill which passed the Senate contained provisions which were regarded as prohibitive of importation of such products from abroad. At first the conferees went even further and inserted what amounted to an embargo. At present the outcome of the agitation for higher rates is uncertain. It is possible, however, that a higher duty without an embargo may result.

The conferees fixed a duty of 45 per cent on surgical instruments and 35 per cent on dental instruments. This is a reduction over the Senate Finance Committee rates, which were fixed at 60 and 45 per cent respectively.

The conferees finally struck out the duty-free provisions on optical and laboratory instruments for educational institutions. They had been requested to retain this provision in the pending Tariff Bill by medical organizations and colleges. American manufacturers of these products, however, maintained that the importation of duty-free laboratory instruments was more of a benefit to the European manufacturer than to American educational institutions. The Conference Committee seems to agree with the contentions of the American manufacturers.

BILLS RELATING TO LEPROSY

a. H. R. 11589.—Passed Senate September 9, 1922. (A. J. P. H., Sept.) This bill, which passed the House on June 19, 1922, provides for transfer of the federal leprosy station at Kalawao, Island of Molokai, Territory of Hawaii, from the government of the United States to the Territory of Hawaii. The property has not been used as a leprosarium for a number of years.

b. S. 3721.—Reported favorably in the House by the Committee on Public Buildings and Grounds September 6, 1922. (A. J. P. H., Oct.) This bill provides for erection of a national leper home at Carville, Louisiana, at a cost not to exceed $650,000. The bill passed the Senate in July.

c. H. R. 12105.—Exactly similar to S. 3721 (A. J. P. H., Sept.) This bill came up for vote in the House on September 1. It was passed over on the objection of Mr. Stafford, who stated that the national government seemed to want to take over all the health activities of the government and make the states abandon their rights to look after the health of their own people.

H. R. 9528. Detention Hospital Building at Nome, Alaska.—Passed the Senate September 9, 1922. (A. J. P. H., Sept.) This bill, which passed the House on June 19, 1922, provides that the government shall not sell the Detention Hospital Building at Nome, Alaska, no longer being used as a hospital, but that it shall be retained for the employees of the United States Bureau of Education.

S. 3472. Retirement of Government Employees.—Passed the Senate September 9, 1922. This proposed law provides that every government employee retiring under the civil service law shall be examined every year after the date of his retirement under the direction of the Commissioner of Pensions by a medical officer of the United States, to ascertain the nature and degree of his disability. In case the examination shows that the annuitant has recovered and is physically able, he shall be placed in the government service again. There is also a provision that in case retired government employees fail to appear for medical examination after receiving instructions to do so their annuity shall be stopped.

H. Con. Res. 66. Extermination of insects, rats and mice from Capitol (S. Res. 342).—Passed the Senate September 9, 1922. This resolution appropriates the sum of $4,500 to be used by the architect of the Capitol in the extermination and banishment of insects, rats and mice from the House Office Building, the Senate Office Building and the National Capitol. The House concurred in the Senate amendments on September 12.

S. 3588. Protection of Watershed at Ogden, Utah.—Reported by the Senate Committee on Public Lands and Surveys September 12, 1922. This bill grants certain lands to the city of Ogden, Utah, to protect its water supply.

MISCELLANEOUS

a. Bills approved by the President since last statement: H. J. Res. 313. Disposal of Veterans' Bureau patients' articles. (A. J. P. H., Sept.) H. R. 10101. D. C. appropriations. (A. J. P. H., July.) H. J. Res. 297. Conference on pollution of navigable waters. (A. J. P. H., Oct.) H. R. 11588. Hospitals for veterans. H. R. 4. Pensions, including nurses'. (A. J. P. H., Oct.) S. 813. Closing of upper Water Street, between 21st and 22d Streets, N. W., Washington, D. C., so that Sci-

ence Building may be erected. S. 2597. Alley dwellings, D. C., to be abandoned. (A. J. P. H., Sept.)

b. The following bills have come up in the Senate for consideration, but have been passed over for future action: S. 3326. To readjust pay of Army, Navy, Public Health Service, etc. (H. R. 10972, A. J. P. H., Aug.) S. 3858. Defining butter and setting standard therefor. (A. J. P. H., Oct.)

c. This bill, which has passed the Senate, has come up before the House, but has been passed over: S. 1010. Imprisonment of prostitutes. (A. J. P. H., May.)

d. District of Columbia Bills:

S. 2040. Compulsory School Attendance and Child Labor.—Passed Senate September 1, 1922. Besides requiring attendance at school of all children from 7 to 16 years of age, this bill empowers a Director of School Attendance and Work Permits to regulate employment of child labor in the District of Columbia.

S. 2083. Regulation of Undertaking and Embalming.—Passed Senate September 9, 1922. This bill provides for the establishment of an Undertakers and Embalmers' Commission in the District of Columbia, consisting of five members appointed for three years. They are empowered to regulate all undertaking and embalming establishments through a system of issuing licenses after examinations are conducted.

S. 2568. Increase in Number of Coroners.—Passed Senate September 9, 1922. This bill provides for an additional deputy coroner in the District of Columbia.

NEW LEGISLATION

(Matters not previously considered.)

H. R. 12472. The Coal Situation and Congress.—Introduced by Representative Winslow August 26, 1922. Favorably reported in the House by the Committee on Interstate and Foreign Commerce August 29, 1922. Since a shortage of coal this winter may develop into a serious health problem, we are including a resumé of the coal bill before Congress. This legislation places the Federal control of coal prices and distribution of coal in the hands of a Federal Fuel Distributor, to be chosen by the President. The legislation sets out the fact that "A national emergency exists which endangers the public health and general welfare of the people of the United States."

It empowers the Federal Fuel Distributor to ascertain: 1. The available supply of coal and other fuel and the extent of threatened shortage; 2. the fields of production and best methods of distribution; 3. the prices normally and usually charged for such coal and whether current prices are just and reasonable; 4. the kind and location of consumers.

The Fuel Distributor is required to issue orders for priorities in car service, embargoes and other suitable measures in favor of or against any carrier or region, and to take other steps necessary for priority in car service and distribution of coal. The bill fixes a fine and prison penalty for any fraud practiced by a person or corporation violating any order made by the Fuel Distributor. A similar bill, S. 3940, was reported in the Senate August 29, 1922.

H. R. 12409. $1,000,000 Government Reward for Discovery of Disease Cures.—Introduced by Representative Sproul August 23, 1922. Referred to the Committee on Interstate and Foreign Commerce. The sum of $1,000,000 in ten equal annual installments is appropriated by this measure to any individual discovering a successful cure for tuberculosis, cancer, pneumonia, paralysis, epilepsy or dementia praecox. A board would be established consisting of the Surgeon General of the Army, the Surgeon General of the Navy and the Surgeon General of the U. S. Public Health Service to investigate any discoveries submitted and to authorize payments of the awards. This board is also empowered to recruit an advisory board composed of eminent specialists to facilitate its investigations. It is provided that when payment has been made for a discovery, no further payment shall be made for discovery of a treatment for the same disease.

H. R. 12398. Increasing Commissioned Personnel of the Army.—Introduced by Representative Curry August 22, 1922. Referred to the Committee on Military Affairs. This is an amendment to the War Department Appropriations Act, approved June 30, 1922, providing for a large reduction in the number of officers in the army. (H. R. 10871, A. J. P. H., Oct.) This amendment makes provisions for the medical department of 985 officers of the medical corps, 160 officers of the dental corps, 125 officers of the veterinary corps, and 75 officers of the medical administrative corps. Another feature of the bill provides that offi-

cers may accept commissions in a lower grade without reduction in pay. Specifications for the elimination of officers are definitely fixed.

S. 3968. Pollution of Navigable Waters.—Favorably reported to the Senate by the Committee on Commerce and passed by the Senate August 31, 1922. In the interest of public health as well as to prevent damage by fire, this measure prohibits the dumping of oil and oil waste in all navigable waters within the jurisdiction of the United States. An act directing the President to call a conference of maritime nations to prevent such pollution has already been passed. (H. J. Res. 297.)

H. Res. 420. Removal of Dr. Charles E. Sawyer as Chief of the Coördination Section, Veterans' Bureau.—Introduced by Representative Ryan August 31, 1922. Referred to the Committee on Interstate and Foreign Commerce. This resolution requests the President of the United States to remove Brigadier General C. E. Sawyer as Chief of the Coördination Section of the Veterans' Bureau and fill his position with someone of professional standing capable of discharging the government's obligations to disabled soldiers. The resolution declares that General Sawyer has previously advised the American Legion that his duties as physician to the President make it impossible for him to give sufficient time to carry out his duties as Coördination Chief.

Reappointment of Major General M. W. Ireland as Surgeon General of the Army. On September 8, 1922, President Harding recommended to the Senate the reappointment of Major General M. W. Ireland as Surgeon General of the Army. General Ireland's present appointment expires October 29, 1922. His new term begins October 30, 1922, and extends for four years.

S. Res. 349. Investigation of U. S. Veterans' Bureau.—Introduced by Senator King September 12, 1922. Referred to the Committee to Audit and Control the Contingent Expenses of the Senate. This resolution directs the President of the Senate to appoint a committee of three senators to investigate the U. S. Veterans' Bureau. Certain charges are set forth with reference to the expenditure of moneys appropriated and to the methods used in carrying out the laws passed by Congress for the care and treatment of ex-service men. The resolution states that Congress has enacted laws for the care of invalid and disabled veterans and has provided a comprehensive plan for rehabilitation and training. It then seeks to investigate the following matters:

(a) Alleged lassitude and delay in the administration of the Veterans' Bureau, and in the making of adjustments for compensation and payments.

(b) Rules and regulations promulgated by the Bureau and its organization are so complicated and over-elaborated as to cause intolerable indirection in handling cases.

(c) Great and needless delay in the construction of hospitals and in providing proper hospitalization for relief of disabled war veterans.

(d) Large proportion of appropriations made by Congress is being consumed in overhead expenses instead of being used for the relief of disabled soldiers.

(e) Popular feeling exists all over the country that acts of Congress in behalf of the veterans are not being properly and equitably administered.

S. 3540. Fees of Examining Surgeons in the Bureau of Pensions.—Passed Senate September 9, 1922. This bill, which was approved by the Bureau of Pensions, provides that the examining surgeon in a pension case shall receive $3 for each medical examination of a claimant. If the examination is made at the claimant's residence the fee shall be $5. The bill changes the existing law on the subject, which confines the compensation of an examining surgeon "to the sum of $3 for the examination of each application where five or less are examined in any one day and $1 for the examination of each additional applicant on the same day."

S. 3974. Amendment to the Pure Food and Drug Act.—Introduced by Senator King September 1, 1922. Referred to the Committee on Agriculture and Forestry. The purpose of this amendment to the Pure Food and Drug Act is to prevent the removal of the contents of a package as originally put up and substitution of other contents. It also prohibits shipment in interstate commerce of packages failing to bear a statement on their labels of the quality and proportion of any alcohol, morphin, opium, cocain, heroin, alpha or beta cocain, chloroform, cannabis, indican, chloral hydrate, arsenic, anaesthesin, antipyrin, belladonna, bromin, cantharides, henbane, iodin, nux vomica, phenacetin, phenol, strychnin, thyroids, or veronal, or any derivatives or preparation of any such substances.

STATE HEALTH NOTES
GENERAL

Arkansas

William L. Holt, A. B., M. D., C. P. H., formerly health officer of Los Angeles County, and for the past two years professor of hygiene and bacteriology, University of Tennessee, has been employed by the Arkansas State Board of Health as epidemiologist and instructor in public health and hygiene in the University of Arkansas, taking effect October 1.

Florida

Upon personal inspection of many yards in Tampa, George Simon, engineer of the State Board of Health, was convinced that there were at least 30,000 mosquito incubators in the city, including unscreened rain-water tanks, cisterns, barrels, and other water containers. It is proposed that the city shall be divided into ten or twelve districts, and that inspectors be appointed to investigate, and to arrest and after warnings to prosecute those failing to abate mosquito breeding places. Much work has already been done in cutting weeds, oiling open ditches, etc.

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Dengue fever is decreasing in Jacksonville, after several weeks' hold upon the city. Dr. MacDonald emphasizes the importance of destroying mosquitoes, as this disease is caused by mosquitoes biting persons with the fever and carrying it to their later victims.

Jacksonville claims to be the only city in the United States where garbage is collected daily from residences.

Illinois

The State Department of Public Health announces that special agents of the United States Bureau of the Census have arrived in Springfield to make a birth registration test. The results of their work, which will probably not be known prior to the close of the year, will determine the completeness of birth reports in Illinois and will, by the same token, determine whether the state is eligible to the U. S. Birth Registration Area.

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Paul A. Slater, M.D., has been appointed district health superintendent in the seventeenth senatorial district. His territory embraces the counties of Coles, Clark, Douglas and Edgar.

Miss Maude Pilch, R. N., has accepted a temporary appointment in the division of child hygiene and public-health nursing to fill a vacancy created by the resignation of Miss Bernice Brady, R.N. Miss Brady severed her relations with the department in order to continue a course of collegiate studies. Miss Pilch has had a number of years of experience in both city and rural public-health nursing service.

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On September 26, Dr. J. J. McShane, chief of the division of communicable diseases, and Thos. G. Hull, Ph.D, superintendent of the diagnostic laboratories of the State Department of Public Health, discussed the subject of toxin-antitoxin in its relation to the prevention of diphtheria, before members of the Macoupin County Medical Society who met in Mt. Olive.

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Harold B. Wood, M.D., has been appointed full-time health commissioner of Bloomington. Dr. Wood goes to Bloomington from Dodge City, Kansas, where he has experienced a very successful tenure of office as health commissioner.

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The Illinois Board of Public Health Advisors held its regular quarterly meeting in Quincy on Tuesday, September 5. The resignation of Dr. John Dill Robertson from membership on the board and the appointment of Dr. Herman N. Bundesen, health commissioner of Chicago, to fill his place were announced. Dr. E. P. Sloan, president of the Illinois Medical Society, was elected secretary of the board to succeed Dr. C. W. Little, deceased. Doctors Evans, Sloan and Robertson spoke before a public audience of 1,000 persons. The members of the board also inspected the offices and administrative activities of the Quincy Public Health District.

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Sanitary engineers of the State Department of Public Health have made two inspections of the water-purification plant at Warsaw and a detailed report is to be submitted to the city giving the results of the inspection. The water is drawn from the Mississippi River and is treated in a filter plant. Because of interconnections, however, with untreated river-water pipe lines and the fact that the untreated water can be

pumped into the mains, it is necessary to consider the public water supply as of doubtful quality. The filtered water storage capacity is so small that if a moderately severe fire should occur the untreated river water would have to be pumped into the city mains in large volumes. The proper methods for making improvements in order to prevent contamination of the water supply and thus afford better health protection are suggested by the Department in its report.

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The State Department of Public Health will actively coöperate with the American Society for the Control of Cancer in its nation-wide anti-cancer campaign which will be intensively carried out during the week of November 12-18. An announcement of the plans for the week is carried in the October *Bulletin* of the Department and arrangements have been made for publishing in the November issue of the same periodical one or more articles on cancer, written in popular style by well-known authorities on the subject. The Department is also prepared to furnish detailed information concerning the plans of the campaign.

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The seventh annual better babies conference conducted by the State Department of Public Health in connection with the State Fair, September 16-23, was the most successful event of the kind ever undertaken in central Illinois. More than 1,000 children were examined while thousands of visitors found time to express an interest in the demonstrations of feeding, bathing, dressing and caring for the baby.

Since 1915, when 250 children were examined at the first State Fair better babies conference, the institution has developed into the large proportions indicated by the examination of 1,000 children this year, while its influence has been such that scarcely a county or local fair in the state is carried on without provision for a baby conference. During 1922 the Department of Health has furnished professional service in an advisory capacity or for actual work to something over seventy-five local communities in connection with these conferences. The records are still too incomplete to give accurately the number of pre-school age children who have been examined but it runs well into the thousands.

The baby conference movement is regarded as an extremely important educational avenue in Illinois. Its popularity brings an immediate contact with the very persons who must be reached in a program embracing instruction in the promotion of maternity and infant hygiene. Besides this it has a decided advantage over the health-mobile scheme designed for the same purpose by many states for the reason that the baby conference, which is held in connection with such permanent events as county or community fairs tends to develop local initiative and thus tends to become a permanent and definite part of community life.

One rather important development that grew out of the state fair better babies conference this year is a movement for the erection on the fair grounds of a children's building, dedicated to the promotion of infant, child and maternity hygiene. The movement has already attracted the attention of business men in Springfield, the capital, the Chamber of Commerce having already pledged its support to the cause.

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The State Department of Public Health has just completed arrangements for inaugurating a regular system of instruction by correspondence for district health superintendents, other medical public-health officers and for the 2,400 non-medical local health officers. It is hoped that at a later date another course may be added for the benefit of local registrars of vital statistics.

The course for medical health officers will serve about 300 persons (including the state district health superintendents) and will be somewhat technical in character. Its scope will embrace the laws, rules and regulations under which district and local health officers function and will point out and clarify their duties and responsibilities under the police powers of the state. It will also describe quarantine requirements. Regular lesson assignments in standard, well-recognized text-books on public health will be made.

The course for the non-medical health officers will be less technical in character and will be concerned especially with the rules and regulations of the department. Through this course each lay health officer will have an opportunity to become thoroughly familiar with the mode of procedure and quarantine requirements in connection with the various communicable diseases and

with his responsibility in enforcing the laws pertaining to these things.

The second annual school of instruction for state district health superintendents was held in the senate chamber of the Capitol building in Springfield, September 14 and 15. All district men were present for the session.

The program at the school of instruction dealt largely with public-health administration, particular emphasis being placed on ways and means of stimulating the creation and extension of local organizations. Doctors W. A. Evans and John Dill Robertson of Chicago were on the faculty. The other members were drawn from the personnel of the State Department of Public Health.

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With deep regret announcement is made of the death of Dr. C. W. Lillie, which occurred on August 31, 1922, at St. Mary's Hospital, in East St. Louis. For many years Dr. Lillie had been health commissioner of East St. Louis and for more than a year had been the secretary of the Illinois Board of Public Health Advisors. He was appointed to membership on the board, which is the first public-health advisory board to function in Illinois since the adoption of the present civil administrative code, by Governor Small and was elected secretary by the board members. Since he first became a citizen of the state Dr. Lillie has been prominently associated with the organized medical profession of Illinois and has always been an enthusiastic proponent of public-health measures.

Iowa

The school-health work in Woodbury County was inaugurated three years ago, and has been carried on by the Organized Welfare Bureau through its department of public health. This work has been carried on in close coöperation with the county superintendent of schools. The working staff consisted for two years of a director of health education and a public-health nurse. For one year two nurses were kept in the field. For the past year the work was continued with one paid worker, the director of health education, with a volunteer staff of doctors and dentists, and senior nurses loaned by the hospitals in Sioux City.

The educational health work of the County has consisted in placing in the schools of the County a course of health teaching, based upon the Health Crusades, in instructing the teachers in weighing and measuring and scoring the physical development of the children, in principles of hygiene, sanitation, ventilation, posture exercises, and methods of relating the home and school more closely.

School clinics were begun this year for the first time. The clinic has been so satisfactory, and has shown itself to be so much superior to the old way of handling the health of the school children, that it will be continued, and probably in time will become a permanent institution in each village of the County. The clinics have proved popular and have shown themselves to be splendid factors in health education, by getting hold of the parent. As an example: A one-day clinic held recently had on its staff 10 doctors, 10 nurses, 13 teachers, 21 women, besides the local superintendent and the director of health education. Three hundred children were given full examination, and 75 parents besides the women working visited the clinic.

The follow-up work was done by the local groups, which were met by the director of health education at the time when the report was given on the local clinic, and the follow-up work divided among the group, the most outstanding problem taken first for follow-up work. For example, in one school where this follow-up work was done by the health committee, the outstanding problem was malnutrition. In three months the committee through their efforts reduced the malnutrition in the school from 16⅔ per cent to 5 per cent. They are now devoting their attention to teeth. The value of having the follow-up work done by the local committee can be readily appreciated as superior to that done by an outsider. Ultimately it is the parent who must be reached, and the public opinion is more potent in the influence of the parent than is the individual advice of a professional worker.

Louisiana

The board of administrators of Tulane University of Louisiana, on July 31, elected Dr. C. C. Bass dean of the School of Medicine. Dr. Bass' work in malaria as professor of experimental medicine and director of the laboratory of clinical and tropical medicine at Tulane has brought forth international commendation. He is well-known all over the country and is familiarly known to the local profession as a scientist of unusual capacity. Much satisfaction is shown because of the selection of a

former graduate of the school as its dean. Since the foundation of the school nearly one hundred years ago, its dean has been regarded as the leader of the medical profession of Louisiana. This is largely due to the position, but has been maintained by the fact that the successive deans have been men of the highest character and attainment.

Maryland

Abel Wolman was elected chief engineer to the Maryland State Department of Health on September 21 by the State Board of Health, to succeed Robert B. Morse, resigned. Mr. Wolman will continue his activities as lecturer in sanitary engineering in the Johns Hopkins University School of Hygiene and Public Health and as editor of the *Journal of the American Water Works Association.*

Massachusetts

The Instructive District Nursing Association of Boston offers a service of visiting nurses in every ward of the city. The staff of graduate registered public-health nurses is at the call of any doctor or any patient. In the annual report for 1921 great appreciation of the work of Miss Mary Beard, R. N., Director, is shown, and sorrow at her resignation because of a much needed rest. The Association is at present trying the experiment of running without either a director or associate director. Miss Anne M. Devanny has become chief-of-staff and Miss Anna Foley has become her assistant. The hope is entertained that Miss Beard may decide later to return. The year 1921 was the thirty-sixth year of the Association's existence. During the year 34,805 patients have been nursed and 288,086 visits have been made. The entire cost of the work for the year was $227,964.37. Thirty per cent of all babies born in Boston have been cared for by the nurses of the Association. The school for public-health nursing, under the joint direction of Simmons College and this Association, graduated 85 students during the year.

Michigan

Michigan's health "minute" men arrived in Montcalm County September 18, and remained until September 29. During the ten-day stay the health workers coöperated with local health agencies in conducting an institute, covering Greenville, Howard City, Lakeview, Edmore, Stanton, Sheridan and Carson City. The institute program consisted of clinics and lectures and extended into every corner of the county.

The tuberculosis, children's and infant clinics were held in the mornings between 9 and 12 and in the afternoons between 2 and 4. The hour between 4 and 5 each day was given over to a general examination of ex-service men. All divisions of the clinic were put at their disposal. The venereal disease clinic was held each evening between 7 and 8.

No charge was made for examination in the institute; findings in every case were referred to the physician designated as the family doctor.

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There are fewer embalmers in Michigan than five years ago and indications are that the number will continue on the downward trend. The embalmers are decreasing in number but increasing in efficiency, with the development of the profession, the raising of the standards for state examinations and the lowering of the death-rate has been responsible for the small number of applicants for embalmers' licenses in the past several years, it is pointed out.

Careful supervision by the Bureau of Embalming of the health department in charge of F. J. Pienta is maintained and state embalmers are kept in close check. Although no licenses were revoked during the fiscal year just ended several proprietors were reprimanded. There were 47 embalmers' licenses issued during 1921-22 compared with 60 during 1920-21. When the board was created in 1901, 360 were granted, and since that time the number has been slowly dropping off. To date there are 1,489 licensed embalmers and 239 apprentices registered in the state.

A state examination will be held in Lansing November 22 and 23.

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Since the announcement of the consolidation of the clinic division, the lecturing, moving picture, and exhibit units, the bureau of education has been arranging a schedule and preparing the fall program. The first health institute was held in Berrien County in September.

Assignments of the institute to counties will be made by Marjorie Delavan, director of the Bureau of Education, on request of individuals or organizations. Dates for five counties have been definitely fixed and details for institutes

in other counties are being worked out. Beginning October 2 the institute is scheduled in the lower peninsula until December 2. The counties which will be visited in that period are: Montcalm, October 2 to 13; Mecosta, October 16 to 21; Clinton, October 23 to November 4; Oakland, November 13 to December 2.

The personnel of the newly organized institute staff is as follows: Dr. Frank A. Poole, lecturer and field director of the unit; Dr. Florence A. Browne, head of the infant unit; Dr. C. A. Wilson, head of the tuberculosis division; Dr. Frank Rose, head of the children's unit; Melita Hutzel, lecturer and Lucile Moore, assistant director of the bureau of education, organizer. Three nurses will assist the clinicians.

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In the 54 days between July 9 and September 1, the laboratory truck, manned by four health department representatives, visited 14 counties and inspected 175 resorts and hotels and covered a distance of 3,300 miles.

All resorts inspected by the portable laboratory were placed in one of three classes: excellent, satisfactory or crude. Grades will be published later. Less than 10 per cent were placed in the excellent class. About 25 per cent were listed as satisfactory and about 65 per cent were marked as "crude with room for improvement."

The inspectors were well received on the tour. Coöperation was afforded them by hotel and resort proprietors and private cottagers. Cottages were inspected and specimens taken only at the request of the owner.

Follow-up work is now being arranged and it is expected that improvements will be made according to the advice of the health department before the 1923 resort season.

Missouri

A preliminary survey of the work in health education in the Kansas City public schools has been made recently by Dr. Bird T. Baldwin, director of the Iowa Child Welfare Research Station, for the city board of education. Kansas City now has 98 schools and 100,000 pupils.

New York

What the job of the public and the private health agencies of New York City is, and where one leaves off and the other begins, was the subject of a symposium at the annual New York City Conference of Charities and Corrections, held in the United Charities Building September 27, under the topic, "The Respective Functions of and the Coöperative Relationship between Public and Private Agencies."

Among those participating were: Dr. Royal S. Copeland, commissioner of health of New York City; Dr. Charles V. Craster, health officer of Newark, N. J.; Dr. James Alexander Miller, president of the Association of Tuberculosis Clinics of New York, and Homer Folks, president of the National Conference of Social Work and secretary of the State Charities Aid Association.

Mr. Folks declared that the chief job of the private health organizations is to help build up efficient and adequate public-health facilities. The private agencies should do at any given time that which will best foster the development of an all-round public program.

"It is perfectly clear and is true always, and at all times," said he, "that public and private health agencies should work in close coöperation, and that the public authorities are naturally the leaders. They should think together in working out new programs of either public or private activities. The chief concern of the private health agencies should be to help build up efficient and adequate public-health agencies. The relationship should always be intimate and coöperative in the true sense, thinking and planning together, as well as working together."

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A threatening outbreak of smallpox on the St. Regis Indian Reservation which began recently has been checked only by a wholesale campaign of vaccination directed by the State Department of Health. In spite of all efforts, however, the infection has spread to other communities in northern New York. During the past year smallpox has prevailed extensively in Canada and Connecticut, and within the last two weeks a dozen cases in western New York have been traced to a source in Ohio. Altogether 146 cases of the disease have been reported in New York State, outside of New York City, since the first of January of this year. The situation is sufficiently serious to urge upon the public the importance of vaccination, and the department is preparing special posters to be put up in railroad stations and public places throughout the state.

The recent outbreak of the disease on the St. Regis Reservation resulted in 29 cases. An

epidemiologist was sent from Albany to coöperate with the district sanitary supervisor and with the local health officers and physicians in vaccinating all residents of the reservation who could be reached.

Ohio

Great progress is being made in the Mansfield Child Health Demonstration, under the direction of Dr. Walter H. Brown. Examinations have been decided upon for all children in the third and fifth grades. The examining corps visit each school; volunteers from the Parent-Teachers Association perform the clerical work; the nurse makes tests of hearing, weight, throat and for posture; teachers weigh and measure, and the dentist makes examination of the mouth. All children having the consent of their parents are then passed for a complete physical examination.

The experience gained thus far has proved that one of the prime needs for successful child-health work is a practical public-health nursing service. This is being attained by adding to the present local nursing groups, who are working under the director of nursing of the demonstration as their head. The hearty support of local educational authorities has been secured and the director of health education of the demonstration will hold the same official position in the schools, thus providing health courses for the present teachers and normal school pupils. This will make it possible to deliver the accumulated experience of the health educators to the local community.

Oregon

On the Pacific Coast the narcotic problem has attained serious proportions, because of the steamers manned by Orientals bringing in drugs. The high price put upon stimulants by the Harrison Narcotic Law has made the illicit trade highly lucrative. In order to place the problem before the public, Mayor George L. Baker held several conferences with officials concerned in controlling crime and preventing violence in the city of Portland. He then requested the governor of the state to make an investigation of the extent of narcotic addiction in the state, and asked advice on how to control the situation. Governor Ben W. Olcott called a conference of the Oregon State Board of Health and the Oregon State Board of Pharmacy, requesting them to make a survey to determine the extent of this evil. A questionnaire was prepared and sent to every doctor, druggist, health officer, nurse, and police official in the state, asking the percentages of arrests who were drug addicts, how many were treated, the number of arrests of those unlawfully selling narcotics, and asking suggestions and information that would be of value in determining the extent of the illicit traffic. It was reported to the governor that there were about 1,500 persons in the state using narcotic drugs habitually.

At a meeting later called by the governor the Oregon Narcotic Control Association was founded. The governor promised to call a conference of the governors of the northwestern states, which was done, and governors or their representatives from Washington, Oregon, California, Nevada, Idaho and Wyoming were present in Portland. At this meeting it was resolved to take such action as to make more effective the provisions of the International Opium Congress, to the end that there shall be a universal cessation of unlawful sale and distribution of narcotic drugs. Larger fines and longer terms of imprisonment were decided upon for those violating the Harrison Act. It was resolved to memorialize Congress to enact such legislation as will control the importation of crude opium and the export of manufactured narcotics, and agreement was expressed with the provisions of the Jones-Miller Bill.

At this meeting a branch of the White Cross was organized in Portland. This organization is doing active work in educating the public to the dangers of narcotic addiction. The public is being educated to know what narcotics are, how they are sold, how the evil spreads, and the radical steps which must be taken to eradicate this problem. It is being shown to the public how much it costs to allow persons to become dependents through preventable disease, and the huge cost of treating them.

It was resolved that the authorities of the Federal Government through Congress, and if necessary the State Department, request the foreign countries having control of the production and manufacture of narcotics to make a careful survey and limit the manufacture to the real needs for medicinal purposes.

Pennsylvania

When the influential suburban districts in Pennsylvania became, under a unique law,

"townships of the first class," one of the first health boards thereunder organized was that of Lower Merion, and David Wilbur Horn, Ph.D., chemist, became associated with it. With his aid this board struggled five years for improvements in the water supply, and eventually eliminated water-borne typhoid, although in 1910 its typhoid case-rate had run 46 per cent higher than Philadelphia's.

Milk work, begun similarly in 1908, has culminated in Lower Merion at present being the only "Federal Accredited Area" in Pennsylvania. Some years in advance of state action, this board made infantile paralysis quarantinable. During the war it developed a cheap procedure for fumigations (required by statute), which method is now official in the national capital. It has for years printed monthly in the papers the laboratory findings on milk and, when necessary, on waters.

The board has supervised the ice supply and the ice cream, and has punished abuses in other food supplies. It has never had an appeal taken from any of the numerous convictions obtained by Dr. Horn under its rules. Recently two neighboring boards have become associated with it, employing G. W. Grim, D. V. M., as milk control officer at a salary of $3,500 a year. The October JOURNAL contains an article by Dr. Horn on recent decisions of the above-mentioned board.

Philippine Islands

A very interesting bulletin is being put out once a month by the Welfare Commission of Manila for welfare workers. This is for free distribution to those sending in their names and addresses. In it are notes sent in from various parts of the country telling of work done and contemplated. This will serve to keep workers in touch with what is being done by others in the field. There are questions, answers, many good suggestions, and excerpts from other publications. The first issue appeared March 15, 1922. It can be obtained by writing to the Office of the Public Welfare Commissioner, 700 Avenida Rizal, Manila, P. I.

Tennessee

Dr. E. A. Lane has assumed charge of the full-time health department recently established by the State Board of Health for Gibson County. Dr. Lane is a member of the staff of the Bureau of Rural Sanitation. Mrs. Sara B. Meyers has been assigned to this department as a first class nurse and Miss Essie Sanborn will go on duty in the immediate future as a second nurse. Later, a sanitary inspector, third nurse and a clerk technician will be added to the staff.

Miss Mary Ermlich has been assigned to the Roane County Health Unit of the Bureau of Rural Sanitation, and will go on duty immediately. Mrs. Julia Smith has begun work with the Williamson County Health Department as third nurse. Miss Cecile Ott, who is now taking a special course in pediatrics in the St. Louis City Hospital, will go on duty as second nurse October 1. The Williamson County Health Department was established in coöperation with the Bureau of Rural Sanitation of the State Board of Health, and is under the direction of Dr. H. L. Phillips, acting county health officer. A good venereal disease clinic has been established in this department, and an extensive program in child hygiene work is contemplated for the future.

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Arrangements have been made for a distribution of diphtheria antitoxin through Montgomery County unit in coöperation with the part-time health officer and the medical profession of the county.

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There has been considerable trouble and misunderstanding regarding the shipping to state laboratories of the heads of dogs sent for examination in suspected cases of rabies. Therefore the State Bureau of Public Health of New Mexico has issued the following directions:

1. Cut the head off close to the shoulders.
2. Put it in a water-tight container.
3. Put this container in a large bucket or can.
4. Pack ice around the container to the top.
5. If you want to send only the brain, take it out whole and pack it in the same way.
6. In any event, wire the laboratory saying on what train the specimen is shipped. Otherwise, it may lie around in the express office a day before being delivered.
7. Prepay charges or shipment will not be received.

This may seem a lot of trouble, but it is the only way to get a specimen to the laboratory in proper shape for examination.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by E. R. Hayhurst, M.D.

Antioch College Department of Industrial Health.—Antioch College, located at Yellow Springs, Ohio, about halfway between Dayton and Springfield, is unique in several respects. Founded by Horace Mann in 1853 and distinguished by a long and honorable history in the production of great academic figures, the college was in 1921 reorganized in an unconventional way by a group of prominent manufacturers and engineers, headed by Arthur E. Morgan, president of the Dayton Morgan Engineering Company. The idea back of this movement is not new—a closer integration of education with the realities of life—but perhaps has never before been applied so consistently and with such an animating spirit behind it. The coeducational student body is divided into two main groups, one of which attends classes during five-week periods, alternating with equal periods of work in the industries of the Springfield-Dayton district, while the other is reversing the process.

One of the courses required for a degree is "Industrial Relations Problems," which includes a study of problems of industrial health.

One of the features of the Antioch plan of special interest to sanitarians is the development of the Department of Industrial Health, whose purpose is to serve professionally the industries of the district, which include some 500 plants with over 75,000 employees. The types of industries are exceptionally varied, some lines being represented by several independent plants, such as fine paper, fare and cash registers, computing scales, automobile starting and ignition systems, electrically operated pump units, electric motors, and large-scale magazine publishing.

The Department is prepared to serve neighboring industries in a variety of ways. It examines and advises on problems of lighting, ventilation, characteristic industrial risks, and special problems arising in industry. It assists in training the local health and welfare organizations of the industrial plants. In addition to two doctors, there is an exceptionally well-trained industrial nurse for that purpose. This work of training and consulting with the existing medical or health services of industries will perhaps be the most important function. The Department is prepared to "sell" to the working force of an industry by lectures and by literature the policy of immunization against smallpox, typhoid, diphtheria, and endemic goiter, and to administer prophylactic measures. It makes physical examinations of employees.

The Department also has an advisory service to primary and secondary schools of the region. It examines lighting, ventilation, etc., and advises as to simple improvements. It makes physical examinations of pupils, sending reports to parents as to specific defects requiring correction. Practical talks to the children reinforce this advice to parents. It also calls together groups of parents to explain to them the significance of the work, to overcome objections, and to get them committed to a policy of immunization against typhoid, diphtheria and smallpox. Curiously, they readily accept goiter prophylaxis, since goiter, prevalent in Ohio, affects the attractiveness of their girls. The medical men of the community have shown a very friendly spirit.

The Department was organized by Dr. George Hoyt Bigelow, formerly instructor in the Department of Preventive Medicine and Hygiene, and of Tropical Medicine, Harvard Medical School, and previously acting state epidemiologist, Massachusetts State Board of Health. The present director is Dr. George P. Paul, of Harvard, and formerly with the International Health Board of the Rockefeller Foundation in British West Indies, Fiji Islands, Australia and India. Dr. Paul was a captain in the Medical Corps during the World War.

The Department is seeking financial support and additional equipment for laboratory and general service. It is hoped to make the service eventually self-supporting by the industries. It is working in close coöperation with the Ohio State Board of Health.

The Physician in Industry: A Symposium.—The National Industrial Conference Board, 10 East 39th Street, New York, has just issued for the Conference Board of Physicians in Industry a report on the work of the physician in industry. This report is in the form of a symposium, to which some 17 members of the Conference Board of Physicians contributed. Many of the problems encountered in medical work in industry are discussed. Each author has contributed of his experience, and the collective experience of this group forms a source of information rich in suggestion and fact, which should do much to identify and clarify the work of the physician in industry and to establish it as an integral and permanent part of the industrial organization.

Each writer has discussed his subject from his own viewpoint and while the Conference Board of Physicians as a whole endorses these views, all controversial statements are personal opinions of the writers. The value of the work of the physician from the viewpoint of the industrial manager is discussed in the concluding chapter.

Among the questions discussed are physical examinations, training for first aid, dental work in industry, the definition of the physician in industry and his relation to community problems, tuberculosis and heart disease among industrial workers, the relation of the physician in industry to the various applications of workmen's compensation laws, with special reference to hernia, eye injuries, back injuries and occupational diseases, and rehabilitation of the industrially handicapped.

This symposium brings together in concise form the present-day information regarding medical work in industry and makes available, in language readily understood by the layman and particularly the industrial manager, the principal features of this form of industrial activity. Copies of the report may be obtained from the National Industrial Conference Board at $1.00 per copy.

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Mercurochrome vs. Iodine.—The use of a 2% solution of mercurochrome in the place of iodine for the treatment of industrial injuries was reported at a recent meeting of the Conference Board of Physicians in Industry. By the use of this material there had been no infections, much less discomfort to patient and less staining of the patient's skin than when iodine was used. As this had been tried in only one industrial dispensary, it was felt that a more extended use of this solution should be had before its adaptability to general industrial work was demonstrated.

Dr. John J. Moorhead reported that some experiments had been carried out at the Post-Graduate Hospital, New York, in which it was found that the application of iodine to the unbroken skin of animals resulted in a sterile surface; while other forms of cleansing, such as soap and water with vigorous brushing failed to give sterile results. He stated that the time element in the application of disinfectants to wounds was of the greatest importance. If an open wound can be disinfected within the first eight hours, much better results are produced than if the initial disinfection is delayed beyond this time. Experimental work shows that after about eight hours there is a considerable increase in the number of bacteria present in the wound secretions and that this number continues to multiply for about three days, after which there is a marked reduction in the number present for a short period, then another increase in numbers for a similar three days, this process being continued until and unless adequate disinfection is applied to the wound.

While it was felt that in certain types of injury, such as extensive burns, other disinfectants were of value, it was the opinion of the conference that, for general all-around wound disinfection purposes, iodine still held first place.

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The Story of a National Crime. *Being an Appeal for Justice to the Indians of Canada. By Peter H. Bryce, M.D. Ottawa: James Hope & Sons, Ltd., 1922. Pp. 18. 35c.*

An account of the political vicissitudes of medical work of the Canadian Department of Indian affairs. The ravages of tuberculosis and other diseases among the native population have, it seems, been grossly neglected.

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Add to Public Health Notes ... ...

The League of Red Cross Societies has moved its headquarters from Geneva, Switzerland, to 7 Rue Quentin Bauchart, Paris.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

A New Reaction for Urea and Its Clinical Value.—The authors describe a new reaction for urea. The addition of Ehrlich's aldehyde to the urine produces a greenish-yellow coloration. A marked greenish-yellow coloration is also produced when Ehrlich's aldehyde is added to a watery solution of urea. No other substance occurring in normal urine, except urea, produces this reaction. The authors think the reaction will be of great practical value in estimating the residual nitrogen in blood serum, which has hitherto been a complicated procedure. In carrying out the test, the albumin of the serum is removed by means of 20 per cent trichloracetic acid; to one c.c. of the filtrate two drops of Ehrlich's formaldehyde are added. A yellowish-green color is only produced when the residual nitrogen is pathological in amount. A positive reaction indicates an increase of the residual nitrogen. The authors think this reaction will be of value in clinical work, as a rough means of deciding if the residual nitrogen is normal or pathological in amount. Only a small quantity of blood serum is required for the test.—Weltmann and Barrenscheen, *Klin. Woch. sch.*, May 27, 1922; *Brit. Med. Jour.*, July 1, 1922.

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Serological Test for Cancer.—The authors claim to have devised a serological test for cancer based upon the reducing power of the serum. The ingredients necessary for the test are, (a) an extract of malignant tumor prepared by maceration of the tissues in one per cent sulphuric acid and a mixture of alcohol and ether, the two solutions after evaporation being redissolved in water, neutralized and sterilized; (b) a 1 in 300 solution of methylene blue containing 1 c.c. of glycerine; (c) normal serum and serum to be tested. On mixing graded quantities of normal serum with the extract and one drop of the methylene blue solution, reduction of the methylene blue gradually takes place, beginning at the bottom of the tube. This reduction does not take place for at least 60 minutes when normal serum and extract are mixed with methylene blue, but if the serum comes from a case of cancer the reduction often commences within ten minutes and is complete much earlier. In sixty-three patients not suffering from malignant disease negative results were found, while eighty cases of cancer affecting different organs all gave a positive result. In an advanced case of inoperable cancer the blood reaction was negative, a result which the authors ascribe to a failure of the defensive ferments due to the advanced stage of the disease. Again it would appear that an individual whose parents have suffered from cancer may show a positive reaction although not suffering from a tumor at the time, this being an indication of a predisposition to malignant disease. Cases are recorded in which the reaction was positive before the removal of the tumor and negative afterwards.—Thomas and Binetti, *Les Néoplasmes,* March, 1922; *Brit. Med. Jour.,* July 8, 1922.

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Complement Fixation in Typhoid Fever.—In the course of typhoid infection, the formation of complement-fixing anti-bodies is one of the earliest and most constant immune manifestations. The introduction of a differential quantitative, active serum technique for the complement fixation test makes it possible to utilize this property for the diagnosis of typhoid fever with satisfactory results. In a limited number of typhoid cases the test has been repeated with inactive serum and found similarly satisfactory. It is recommended, however, that the active serum technique be used, as it saves much time in the routine work of the test.—L. G. Hadjopoulos, *Jour. Inf. Dis.*, 31, 226 (1922).

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The Hecht-Weinberg-Gradwohl Test.—A total of 150 serums were examined. The reactions with the Hecht-Weinberg-Gradwohl test were hardly so marked as with the Wassermann technique, but the Gradwohl modification might be considered somewhat superior when relying only on the results with the acetone-insoluble antigen in each method. On the other hand, the use of the cholesterinized antigen with the Wassermann method showed a stronger reaction with each positive serum

(with one exception), and further gave a stronger positive reaction in one case (tertiary syphilis) which was negative with the Hecht-Weinberg-Gradwohl technique. In this work all serums giving positive reactions came from patients who gave a clear clinical history of syphilis with the exception of one who had a suspicious history.—L. W. Famulener and Julia A. W. Hewitt, *Jour. Inf. Dis.*, 31, 285 (1922).

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Colorimetric Determination of Hemoglobin with the Aid of Stable Standards.—Methods are offered for preparing: (a) A concentrated stock solution of acid hematin to be kept in ampules; (b) a stable dry acid hematin protein powder of uniform color, from which standards may be prepared by weight; (c) transparent acid hematin gelatin films which may be substituted for Newcomer's glass plate. The factor of turbidity invariably present in acid hematin solutions as usually prepared from whole blood is discussed, and suggestions are offered for its elimination. The employment of heat for the more rapid development of maximum color has been found objectionable. Method suitable for routine hemoglobin determinations is proposed.—Edwin H. Terrill, *Jour. Biol. Chem.*, 53, 179 (1922).

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Studies on Cerebrospinal Fluid and Blood of Syphilitic and Normal Persons.—The globulin fraction in syphilitic serum contains the active substance in the Wassermann reaction. The filtrability of globulin in syphilitic serum by the ultra-filter was less than that in the normal serum. Positive colloidal gold reactions are due to the presence of precipitating substances. Both precipitating and protecting substances are present in pathologic cerebrospinal fluid. Albumin and globulin may possess both precipitating and protecting power. Ultra-filtrates of syphilitic and non-syphilitic serums give curves that are more or less similar, but there tends to be a greater difference between the zones of reduction of the original and filtered serum in syphilitic than in normal cases. The protecting substance is decreased by ultra-filtration to a greater degree than the precipitating substance. The salt solution used in the colloidal gold test partially neutralizes the protective action.—Charles E. Nixon and Koichi Naito, *Arch. Int. Med.*, 30, 183 (1922).

Value of Basal Metabolism Determination in Hyperthyroidism.—As deviations from the normal in basal metabolic rates are not always dependent on diseases of the thyroid, the author urges that a very careful history and painstaking examination should always precede the basal metabolism determination. This clinical study, if sufficiently thorough, will suffice to make the diagnosis in many cases. There are borderline cases, however, in which the metabolic rate will prove very helpful. In conjunction with the usual clinical signs of toxicity the basal metabolic rate assists materially in deciding what form of therapy is more advisable. As changes in the metabolic rate frequently precede changes in the clinical picture, metabolism estimations at stated periods afford a valuable means of checking any therapeutic measure, either medical or surgical.—H. F. Stoll, *Boston Med. Surg. Jour.* 187, 127 (1922); *Jour. A. M. A.* 79, 765 (1922).

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An Injection Method for the Identification of Tapeworm Species.—A simple method for visualizing the uterus in tapeworm proglottides, to identify the species, or for demonstration purposes, as used in the wards and laboratories of the Cincinnati General Hospital for the past five years, consists in the injection of the canals with India ink. A hypodermic syringe (1-2 c.c.), fitted with a fine needle, is filled with India ink. The segment to be injected is held flat on a piece of glass by means of a wooden match stick or applicator, and the needle inserted into the substance of the fresh proglottis, near the lateral genital pore. With a little manipulation, one of the diverticulae of the uterus is easily entered and the ink readily fills all the branches. Pressure between two glass slides brings out the details very clearly, and the sparsely branched organ of T. solium is easily differentiated from the more abundant ramifications of T. saginata. The method is also applicable to other cestodes, and may also be used with preserved material, although the results are not as complete as with fresh. Permanent preparations may be made by preserving the flattened segment in 10 per cent formaldehyde, dehydrating in alcohol, and after clearing the xylol or carbol-xylol, mounting in balsam.—Raphael Isaacs, *Jour. Lab. Clin. Med.* 7, 689 (1922).

Influence of Certain Carbohydrates on Sugar Content of Blood.—The author charts the repeated findings in six diabetics and in six normal subjects. They show that the rise in the sugar content of the blood reached the highest point in about an hour in both groups, but it was far more pronounced in the diabetic. The hyperglycemia was lowest after ingestion of oatmeal and much higher with rice. In one diabetic, for example, after ingestion of 75 gm. of glucose the blood sugar rose from 1.24 to 2.12 in one hour and by the third hour was 0.88. After ingestion of oatmeal the corresponding figures were 1.8, 1.37, 0.90 and 1. With rice they were 1.04, 1.60 and 0.98. The physiologic sugar content of the blood averaged in the six normal subjects 0.5 to 1 gm. per cent.—M. Casteigts, *Rev. Asoc. Med. Argentina,* 35, 28 (1922); *Jour. A. M. A.*, 79, 859 (1922).

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The Kahn Precipitation Test in the Diagnosis of Syphilis.—Recently, Kahn *(Arch. Dermat. Syph.,* 5, 570, 1922) has proposed for the serologic diagnosis of syphilis a precipitation reaction in which he utilizes, as antigens, alcoholic extracts of heart muscle, with and without the addition of cholesterin. The clinical application of this reaction, in 350 unselected cases entering the service of dermatology and syphilology of the University Hospital, Ann Arbor, forms the basis of this study. The clinical application of the Kahn precipitation test compares favorably in sensitiveness with the standard Wassermann reaction. It has obvious great advantages over the Wassermann reaction in: (1) simplicity of procedure, (2) rapidity of reading, and (3) reduction of the sources of error through elimination of a hemolytic system. Its obvious advantages over other precipitation reactions lie in the visibility of the precipitate to the naked eye, and the frequent spontaneous reactions with strongly positive serums. Further confirmatory tests, demonstrating parallelism with the Wassermann reaction, may well lead to the eventual abandonment of the latter in favor of the simpler precipitation procedure. As a last advantage, a test embodying only one reagent plus a serum offers a greater possibility of standardization.—Harther L. Keim and Udo J. Wile, *Jour. A. M. A.*, 79, 870 (1922).

Serodiagnosis of Syphilis by Flocculation.—The author describes the technic of his flocculation test for syphilis and gives comparative results in 1,500 cases. Leaving the weakly positive differences out of account, there was complete agreement between the results of the Wassermann and the Bruck tests in 98.6 per cent of the cases. As some of the advantages of his test over other flocculation test, he states that: (1) It is carried out with the same, constant extract suspension, without special additions, so that the results are not affected by the accidents arising from the necessity of preparing new dilutions. (2) An incubation cabinet and special optical methods (agglutinoscope) are superfluous. (3) As there is no necessity of long incubation or keeping the serums at room temperature, the danger of non-specific flocculations is avoided. (4) The technic is exceedingly simple and the reaction is prompt. The results are brought out sharply and—aside from the time required for inactivation—the result is obtained in less than half an hour.—C. Bruck, *Deutsche Med. Woch. Schr.,* 48, 825 (1922); *Jour. A. M. A.*, 79, 924 (1922).

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The Sugar Content of the Blood After Dextrose Enemas.—The authors injected into the rectum 100 or 200 gm. of a strong solution of dextrose, giving it by rectal drip in the lower part of the ampulla. They tested the sugar content of the blood and urine every hour. In their seventeen tests the sugar content of the blood kept within normal range, but in seven cases there was decided glycosuria for up to seven hours. In one case it totaled 4.6 gm. This is in marked contrast, they say, to the findings when dextrose is given by the mouth; the blood sugar runs up then by 100 per cent or more, while there is no glycosuria. They ascribe this to the fact that the dextrose, as they gave it by the rectum, was absorbed directly into the blood without passing through the liver. It thus acted like a foreign substance and was cast off by the kidneys. When it passes through the liver it becomes modified in some way that adapts it as part of the organism, and when it reaches the kidneys, these organs do not cast it off. This assumption credits a new function to the liver, the transformation of dextrose in this way.—Varela and Rubino, *Med. Klinik, Berlin,* 18, 831 (1922); *Jour. A. M. A.*, 79, 924 (1922).

Diagnostic Value of Glucose Tolerance.—The sugar analyses of blood and urine made by the author in a series of varied cases show graduation of assimilation which may be designated as, (1) strong normal, (2) normal, (3) weak normal or prediabetic, (4) diabetic. With all possible allowances for uncertainties presented by renal glycosuria, toxic or infectious states, or other endocrine disorders, the simple glucose test revealed many cases of early or latent diabetes, in which prophylactic dietary regulation is a rational procedure. Studies of the largest possible numbers of such cases over the longest possible period of time will be necessary to establish their progress with certainty, but it seems probable that many cases of diabetes may be prevented by diet instituted on the basis of glucose tolerance tests in the prediabetic stage.—H. J. John, *Jour. Metab. Res.*, 1, 497 (1922); Jour. A. M. *A.*, 79, 682 (1922).

✣

Value of Weil-Felix Reaction in Typhus.—The author has found the Weil-Felix reaction of considerable value as an aid in the diagnosis of typhus. Only agglutinations in dilution of 1:50 and upward should be accepted as definitely diagnostic typhus. Agglutinations in lower dilutions may be suggestive if in keeping with the clinical features, and call for a further test in a few days' time. The test may be positive on the fifth day, but is usually not so until the second week. The strongest reactions may be expected about the twelfth or fourteenth day. A positive reaction may persist for a few weeks, or at most a few months, after recovery. Typical cases may never develop a positive reaction, so that no stress should be laid on a negative reaction if the clinical features justify the diagnosis.—J. H. H. Pirie, *Med. Jour. South Africa,* 17, 197 (1922); *Jour. A. M. A.* 79, 686 (1922).

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Spirochaeta Pallida in Sperm.—In 1920 the author began to study the possibility of the transmission of spirochetes by the germ, and a little later Pinard and Hoch reported having found Spirochaeta pallida in 3 of 11 specimens of human sperm. His further research confirmed theirs. Besides his microscopic research, he inoculated the anterior chamber of the rabbit eye with human sperm, obtained by massaging the seminal vesicles after injecting 200 c.c. of physiologic saline into the bladder. Spirochaeta pallida was found in 5 of 22 specimens examined. In one case the spirochete was attached to the tip of the spermatozoon head by one end and to the middle piece by the other end. In another case, half the spirochete clung to the middle of the tail, the other half floating free. Of the 22 inoculation experiments, a positive result was obtained in 9 and negative results in 10. The spirochete was refound in only 2 instances. There was suppuration in 3 of the rabbit eyes. Carle states that the mother giving birth to a syphilitic child is always syphilitic, although seemingly in perfect health. It often happens, however, that these women reëxamined in the course of several years will not present any signs of syphilis, and that the seroreaction will remain negative.—R. Lakaye, *Arch. Med. Belges,* 75, 385 (1922); *Jour. A. M. A.,* 79, 686 (1922).

✣

Gonococci in Gonorrheal Eruption.—The authors report what they think is the first case of a petechial eruption in the course of gonorrhea, with gonococci in the blood, in which the gonococcus was found in the depths of the skin. The microscope differentiated it from the meningococcus.—Paschen and Jentz, *Med. Klinik, Berlin,* 18, 428 (1922); *Jour. A. M. A.,* 79, 690 (1922).

✣

The Use of Desiccated Blood Serum in the Typing of Blood.—The laboratory worker has been confronted with a problem in preserving the necessary serum with which to perform these tests. Fluid serum is ordinarily used for performing the test and is usually preserved by the addition of some substance such as phenol or glycerin, or a combination of the two. Sanford has devised a method, a modification of the Moss test, in which he uses serum dried on ordinary cover glasses for the purpose. This method necessitates the employment of numerous cover glasses and involves a considerable expenditure of time and energy, especially if a considerable number are prepared. The author has found that an equally advantageous measure has been to dry the blood serum and store it in hermetically sealed containers and place a small amount of it in solution with normal saline when needed for a test. In this manner he avoids the use of serum to which more or less objectionable preservatives have been added

and eliminates the features of cloudiness, precipitation and unsightliness which are evident in serum which has been preserved by the addition of chemicals.—William G. Gill, *Milit. Surg.*, September, 1922.

✣

Sugar Tolerance in Dementia Praecox.—Except in cases of active catatonia, certain cases of simple deteriorating dementia praecox and several cases in which evident emotional upsets existed at the time of the test, the author's investigation points to a blood sugar concentration in mental disease that is practically normal when the test is made while the patient is fasting, the average being 0.105 per cent. The response of patients with mental disease to sugar feeding is generally within normal range. Patients in the active stages of catatonic dementia praecox responded to glucose feeding with a hyperglycemia that resembles the response obtained in hyperthyroidism. Several patients with simple deteriorating dementia praecox responded to glucose feeding in a manner that resembles the responses obtained in certain endocrine disturbances, such as dyspituitarism. Patients suffering from manic depressive insanity—depressed phase—responded to the sugar test with a curve higher than that found in normal subjects.—W. F. Lorenz, *Arch. Neur. Psych.*, 8, 184 (1922); *Jour. A. M. A.*, 79, 994 (1922).

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Colloid Reactions of the Cerebrospinal Fluid.—The author reiterates that the colloidal benzoin test is instructive in various forms of neurosyphilis. In general paresis the benzoin reaction is very pronounced, as also often in tabes. In clinically progressing forms of cerebrospinal syphilis, the colloidal benzoin reaction is positive. When progressing syphilitic lesions have disappeared and only sequelae remain, such as hemiplegia, paralysis, etc., the colloidal benzoin reaction is often negative. In secondary syphilis, the benzoin reaction is positive only in patients having pronounced hyperalbuminosis and hypercystosis, with positive Wassermann reaction. The reaction is negative in patients with lesions of the nervous system of non-syphilitic origin. It is always negative in epidemic encephalitis while the Wassermann reaction may be positive. Comparing the Wassermann reaction and the colloidal benzoin reaction in neurosyphilis, one may be positive while the other is negative, and vice versa. Cases exist in which a positive colloidal benzoin reaction alone leads toward a diagnosis of neurosyphilis, confirmed later by the evolution of the disease, and the Wassermann test becoming positive after reactivation with arsenical or mercurial treatment. It is also of real prognostic value, and can give important data on the gravity of clinical cases. It is simple and accurate and should be used in conjunction with the Wassermann reaction, and will give valuable information on the acute and subacute evolution of syphilitic lesions. The author describes his technic in detail, and extols the advantages of this colloidal benzoin method over the Lange, Emanuel and other tests.—G. Laroche, *Bull. Méd., Paris,* 36, 530 (1922); *Jour. A. M. A.*, 79, 1001 (1922).

✣

Complement Fixation in Gonorrhea.—The author reports the results of a series of 1,000 tests tried in the venereal disease department of St. Thomas' Hospital. The most striking points which he has found are: (1) The early stage at which a positive result may be obtained. (2) The relatively high percentage of positives in undoubted cases of active gonorrhea (average 86.5 per cent). (3) The very low incidence of "false positives"—only 3 in 1,000. In none of these latter cases could gonorrhea be absolutely excluded, and the cases were only included because the medical officers in charge of the cases marked them "non-venereal."—T. E. Osmond, *Lancet,* June 10, 1922, 1143 (*D. G.*).

✣

The Bacteriology of Dental Caries.—The research reported is from the Bland-Sutton Institute of Pathology, Middlesex Hospital, London. In the examination of selected carious material the constant presence of a definite type of bacilli was noted. These bacilli are capable of forming a high degree of acidity by the fermentation of carbohydrates. Teeth left in contact with cultures over prolonged periods showed changes almost identical with natural caries; namely, erosion of the enamel, penetration of the dentinal tubules, and the formation of liquefaction foci. These bacilli in their resistance to and formation of acid resemble the acidophilus group of Moro; biologically, however, there are several points of difference. To these bacilli the authors give the name *B. acidophilus odontolyticus,* Types I and II.—J. McIntosh, W. W. James and P. Lazarus-Barlow, *Lancet,* June 17, 1922, 1183 (*D. G.*).

Value of Complement Fixation in Pulmonary Tuberculosis.—The authors have previously shown that a positive complement fixation test is obtained in 98 per cent of cases with tubercle bacilli in the sputum. They have subsequently collected evidence which suggests that this small error of 2 per cent occurs in cases of very sudden onset and running a very rapid course, in which presumably the tubercle bacilli are so virulent and the invasion so massive that those cells of the body which are responsible for the production of the complement fixing substances are overwhelmed with toxins and unable to respond to the call made on them. In the rare cases in which with symptoms due to tuberculosis, the test is negative at first but later becomes positive, it is reasonable to assume that a sufficiently long interval has not elapsed from the time of infection for the complement fixing substances to be developed. In a series of controls consisting of healthy persons or persons suffering from diseases other than tuberculosis the test was negative in 98.5 per cent. In a series of 50 cases with symptoms strongly resembling those of pulmonary tuberculosis ,and sometimes even with apical signs, giving a negative result to the test, 49 showed no further evidence of tuberculosis infection from 10 to 20 months later.—A. L. Punch and A. H. Gosse, *Brit. Med. Jour.*, July 15, 1922, 79 (*D. G.*).

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Pneumococcus Antibody in the Treatment of Pneumonia.—The authors report the results of studies made in over 900 cases of lobar pneumonia at Bellevue Hospital for the past two years. In the series in which there were 917 cases, bacteriological examination showed that 90 per cent were of pneumococcus origin. The greater part of the remainder were referable to Streptococcus hemolyticus or Streptococcus viridans. In the pneumococcus series, Type I predominated (38.4 per cent). Type IV was next with 27.7 per cent; Type II (18 per cent), and Type III (15.9 per cent). In 424 cases of pneumococcus treated with pneumococcus antibody solution (preparation of which is described) the death-rate was 21.4 per cent. A control series of 410 cases in the same institution showed a death-rate of 28.3 per cent. Pneumococcus antibody produced its most striking effect in pneumococcus Type I pneumonia—in a series of 156 treated cases the death-rate was 13.3 per cent; while a control series of 162 cases showed a death-rate of 22.2 per cent. A definite but less marked effect was observed in cases of pneumococcus Types II and IV pneumonia which were treated with antibody. The antibody solution had no effect whatever on the death-rate in pneumococcus Type III pneumonia. The death-rate of Streptococcus pneumonia was not favorably influenced by antibody treatment. In the series of patients treated with antibody 28.8 per cent recovered on or before the fifth day. In the control series only 7.9 per cent recovered on or before the fifth day.—R. L. Cecil and N. P. Larsen, *Jour. Amer. Med. Assn.*, July 29, 1922, 343 (*D. G.*).

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CONVENTIONS, CONFERENCES AND MEETINGS

This calendar is published through the coöperation of the National Health Council, 370 Seventh Avenue, New York City. The Council will be glad to answer promptly any written or telegraphic inquiries regarding meeting dates in order to avoid conflicts.

October 23-27, American College of Surgeons.

November 1-4, National Association Practical Refrigerating Engineers, St. Louis, Mo.

November 13-16, Southern Medical Association, Chattanooga, Tenn.

November 14-16, New York State Conference of Charities and Corrections, Albany, N. Y.

December 1-2, Forty-eighth Session New Jersey Sanitary Association, Lakewood, N. J.

December 8-9, Western Surgical Association, Minneapolis.

December 12-14, Southern Surgical Association, Pinehurst, N. C.

December 26-30, American Association for Advancement of Science, Boston, Mass.

FOREIGN MEETINGS

December 18-23, International Congress on Health Education, Paris.

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PRESIDENTIAL ADDRESS OF A. J. MC LAUGHLIN, M. D.

PRESENTED TO THE FIFTY-FIRST ANNUAL MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION, CLEVELAND, OCTOBER 16, 1922.

THE history of the American Public Health Association is one of glorious achievement. It is the history of the development of public health itself. A roll call of its older and earlier members includes the names of all the great figures whose constructive genius built our health departments. The contributions of its members in research made possible the great saving of lives which is shown by our phenomenal reduction in death-rates, and these contributions not only revolutionized public-health practice in this country, but set an example of method and procedure which has been copied in all parts of the world.

The evolution of public-health work has been characterized by a broadening of scope and the inclusion of non-medical personnel. The scope of public-health work has been broadened in very large measure by the work of unofficial organizations working in coöperation with official agencies. Unofficial organizations can, and usually do, initiate new expansions in the public-health field years before the official agency can secure money or authorization therefor. They are always ready to carry on such work in accordance with official programs and to surrender the work to the official agency whenever that agency is ready and willing to take it over.

The inclusion of larger numbers of non-medical personnel in health departments was inevitable with the evolution and expansion of public-health work, and sanitary engineers, chemists, bacteriologists, public-health nurses and other non-medical personnel are necessary units in any well organized health department.

The field of public health expanded first from the suppression of epidemics to the prevention of the spread of epidemic disease. It then expanded from the prevention of communicable disease to the prevention of all diseases, and finally from the negative prevention of disease through personal hygiene to the positive maintenance of health. This continual expansion is responsible for the very complex organization which is now necessary in our health departments.

The American Public Health Association kept pace with this expansion by admitting to its membership and councils representatives of the unofficial voluntary agencies engaged in public-health work, and by taking in as members sanitary engineers, bacteriologists, chemists, public-health nurses, and all others engaged or interested in public-health work.

The American Public Health Association is a unique organization in being the only forum in which health workers, medical and non-medical, official and un-

official, lay and professional, meet regularly on a common ground to discuss all phases of public-health problems.

There are medical conferences on public health. There are the meetings of highly specialized health workers on their specialties; there are the meetings of unofficial health organizations; there are conferences between the federal and state health officers; but I repeat, there is only one organization which affords an opportunity for federal, state, and local health officials to meet on a common ground with each other and with the representatives and employees of unofficial and voluntary agencies; only one organization in which the doctor, sanitary engineer, chemist, public-health nurse or other health worker, meet and discuss public-health problems—and that organization is the American Public Health Association. No other organization is so representative of all groups which make up our complex public-health activity and, therefore, no organization is so well qualified to exercise national leadership in securing a combined synchronous attack by official and unofficial agencies upon public-health problems.

It seems clear to me that if the American Public Health Association is to fulfill its manifest destiny, it must continue its work in standardization and it must do its part in establishing a public-health profession. The traditions and history of the American Public Health Association prove that one of its most useful functions is standardization. Its work on milk and water standards, and standards of method and procedure in public-health practice, demonstrates the wisdom of continuing such work. The Association should serve as a reservoir for the collection of information and as a clearing house for its distribution.

The time has arrived for the establishment of a public-health profession. The work is highly specialized, but this fact is not generally known or accepted. A graduate M. D. without special training is not qualified to administer a health department, any more than to practice any other specialty without proper training.

There are two obstacles to public-health progress which stand out with great prominence. They are insecurity of tenure and inadequate compensation of health officers. I believe that no single step promises so much in surmounting these obstacles as the establishment and recognition of a public-health profession.

The American Public Health Association has kept pace step by step with the evolution of public-health work in this country, but in so doing it has become a highly complex organization operating under a constitution and by-laws which are in need of revision to meet the responsibilities and duties of the future. For years there have been demands from the membership for revision of the constitution, and last year (1921) a revision was completed, but at the annual meeting a new resolution was presented which seemed to suggest further and more radical revision. A Committee of Fifteen was appointed by your President to consider reorganization of the Association, and to make recommendations for such revision of the constitution and by-laws as might seem necessary. This question is of such fundamental importance that I have confined my attention to it in the time I have been able to give to Association matters during the past year, and I suggest that in lieu of a longer and more formal presidential address we devote the remainder of the time this evening to the report of Dr. Henry F. Vaughan, chairman of the Committee on Reorganization.

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REPORT OF COMMITTEE ON REORGANIZATION

Introduction

At the last annual meeting of the Association, held October, 1921, in New York City, there was presented a resolution expressing the feeling of many members of our Association, that certain improvements could be made in our form of organization which might strengthen our membership, and give opportunity for the development of new activities. There was by no means universal agreement in the complaints which were offered at this time, and it is believed that some of the remarks presented in the resolution were unjustified, but, it is agreed that in the main there was proper foundation for much of the criticism, and the resolution has been instrumental in instituting a thorough housecleaning, as it were.

The American Public Health Association at its inception was organized by individuals who were primarily engaged in public-health activities, and under such administration the Association rapidly developed and was directly responsible for the spread of the public-health movement. It was through the influence of its members that the National Board of Health was brought into existence, to be followed later by the United States Public Health Service. Many of the state health departments owe their early existence to the impressive preachings of the pioneers in sanitation and preventive medicine who constituted the first members of our Association. We have a past record of which we should be justly proud. With the growth of a general appreciation on the part of the public of the value of a health service, it became natural that many of our intelligent citizens should desire active association with those actually engaged in our profession. The Association, therefore, changed its organization to admit Associate Members as well as Members, and, at a late stage in our development, the interested public was admitted to full membership.

Of late we have seen the growth of a tendency toward specialization in all professions, and this has resulted in the organization of new associations and societies which are devoting their efforts to such problems as the prevention and control of tuberculosis, child hygiene, mental diseases, social diseases, etc. The influence of these groups has been felt even in the most isolated rural sections of our country, and the value of the work which they are performing is well-known to all. Each organization has its special appeal, and has a closer point of contact with the laity than our Association can ever hope to obtain. There is need of groups of this character to keep the public generally aroused and interested in the conservation of human life, but there is equal need of an association which shall consist primarily of men and women who have chosen public health as their life profession. To perform our work with the greatest credit to ourselves, and with the greatest advantage to those whom we serve, we must maintain some degree of relation with those who manifest sufficient interest in our work to be willing to support our Association, and to meet with us from time to time and to participate in the discussion of our problems. We therefore recommend the reëstablishment of an Associate Membership in the Association for the laity. On the other hand, we believe that there is an opportunity at this time to group together in a Fellowship of the Association, those who have chosen public health as their primary occupation. The lawyers, the doctors, and the engineers have a well-recognized professional standing, but, when a newly elected mayor is called upon to select a health officer for his community, he rarely considers, as one of the re-

quirements for his candidate, the specification that the man must be recognized as a doctor of preventive medicine. Sometimes, he picks out his family physician; usually he selects an individual who has a certificate which permits him to practice curative medicine, for which work he may or may not have qualifications. The mayor should not be satisfied with such a choice; he should be in search of one who is qualified to practice preventive medicine; and from what list is he to choose? We have no established profession. Your Committee feels that the Association can take the lead in establishing ourselves professionally by providing in our membership for different grades of constituents, the highest to be that of Fellows. It should be an honor to be a Fellow of this Association; it should mean that the individual is well qualified to assume the responsibilities of his profession. There is no intention of limiting Fellowship to the health officers, or even to those who may be associated with the health officer in his official work, such as sanitary engineers, laboratory men, child hygienists, etc. It is intended that Fellowship should be extended to all professional health workers of standing, whether employed by public or private agencies, or in independent private practice. Many of our best health officers have gone into industrial plants to develop this important angle of health work. Others are conducting departments of health in our large insurance companies, in our foundations, newspapers, universities, and elsewhere. Certainly these gentlemen are just as truly employed as professional health workers as are the health commissioners of our large states and municipalities. There should be no distinction made in this direction, and Fellowship should be open to them all. It is felt that the younger men in our profession should serve a sort of apprenticeship as Members of the Association before their names may be considered for advancement to Fellowship. In fact, all new constituents should be Members at least two years, and then, after proper application is made and the candidate is sponsored by two Fellows of the section in which affiliation is desired, the qualifications of the prospective Fellow may be examined and scrutinized. If, in the judgment of the Section Fellows, the individual has attained sufficient distinction in the profession, his application will be forwarded to the Governing Council of the Association for final approval or disapproval.

In order to start the operation of the new plan, it is necessary to provide for a nucleus of our Fellowship, and with this in view, the Committee has recommended that the Governing Council and various Section Councils constitute the first group. They in turn will give immediate consideration to a list which has been prepared containing the name of every individual who has been a Member in good standing in the Association during the past five years. There are approximately 1,000 names on the list and, after reviewing this material, the Governing Council has found that about one-half of this number should be admitted immediately to Fellowship. This does not mean that there are not others who should be granted Fellowship at the earliest possible opportunity. This is merely a method of obtaining a starting point, and those whose names are favorably passed upon constitute solely that group with whom the Section Officers or the members of the Governing Council are personally acquainted. An effort should be made to consider at the earliest opportunity, the name of every health worker who has been in the Association for more than two years.

Provision is made in the By-laws for the publication of the names of all prospective Fellows. This will enable every Member of the Association to carefully scrutinize the list of candidates, and raise objections in case he has any feeling that the candidate should not be admitted. The final vote will be taken by the Governing Council, and at least three-fourths of the votes may be cast in favor of the

individual before he can be admitted to Fellowship.

It is felt that each constituent of the Association should have his home Section, and that his power of voting should be confined to this Section. There is nothing, however, which will prevent his giving papers when invited, at the meeting of any other Section, and he may participate in discussions, serve on committees, except in the capacity of chairman. He may, when he desires, transfer his affiliation from one section to another.

It is never pleasant to speak of a raise in dues. The Members of the American Public Health Association have paid $5.00 a year from the time of our organization, over fifty years ago. The Association has always been in a bad position financially and has virtually lived from hand to mouth. It is certainly worth more than $5.00 a year to all who are engaged actively in public-health work, and its value to the individual will be greatly increased under the proposed plan of reorganization. Surely, we can all find in our annual family budget some small expenditure which could be diverted more profitably to the support of this Association; $5.00 which we are accustomed to spending for some trivial item or service with which we could well dispense. Furthermore, as we develop an appreciation of our profession on the part of the public there will follow an increase of compensation for health workers, a more secure tenure of office, and a tendency to minimize the political aspects of the job which have been so familiar to us all in years gone by.

Through the continuation of the work of the Committee on Municipal Health Department Practice, of which Professor Winslow is chairman, and with the expansion of a study of this character to include state health departments and some of the smaller municipal health departments, there may be brought about a condition whereby there will exist a continuous local pressure which will demand the maintenance of a high-grade health organization in each political subdivision. Once the public can be made to see the value of an "A" grade department, instead of a "C" grade organization, there will be no danger of political influence interfering with budgets or the activities and policies of a local health organization. The work which can be done along this line is quite comparable to the splendid results which have been achieved by the American College of Surgeons in endeavoring to raise the standards of hospitals throughout the country, and the similar work undertaken by the American Medical Association and others in eliminating from the field the undesirable schools for medical education. Each and every one of us as a health official, if we take our profession seriously as we should, will be rewarded many times over for the additional expense which we assume in connection with furthering the interest of our Association. Please let it be understood also that what we have paid in the past has hardly sufficed to offset the publication of the JOURNAL, which is received by each and every one of us. Had it not been for the continued support of corporations and individuals who are interested in our work, and who have joined our Association as sustaining members, we could never have advanced as far as we have, and made the contributions which are affecting our own local problems. During the past year the Metropolitan Life Insurance Company has appropriated some $30,000.00 to our Committee on Municipal Health Department Practice. Let us in the future increase not only our financial support of the Association; but, what is far more important, let each individual in spirit and effort become a booster for the organization.

The complete Report of the Committee on Reorganization is divided into four parts:

Part 1 refers to changes in the Constitution; it provides for a smaller num-

ber of Councilors elected at large, and a correspondingly larger number serving as representatives of the various Sections. It is provided that the section officers shall constitute the section representatives. The purpose of this is to bring about a closer working relationship between the Sections and the central governing body of the Association. Changes in the Constitution must be acted upon at a general meeting of the Association, and were therefore officially adopted at the first general meeting of the Cleveland session.

[In order to avoid duplication, the reader is referred to page 992 of this JOURNAL where will be found the revised Constitution and By-laws of the Association. The Constitutional amendments were limited to Article III.—EDITOR.]

In part 2 are incorporated the proposed amendments to the By-laws. These have been discussed above. They were approved by the Governing Council as provided for by our Constitution, and the unanimous vote at a general meeting expressed the confidence of the membership in the previous action which had been taken by the Councilors.

[The amendments referred to will be found on page 993 of this JOURNAL, Article I of the revised By-laws.—EDITOR.]

Parts 3 and 4 of the report are of great importance, and outline certain policies of our program which the Committee feels should form a basis of all future activities. The entire report has been carefully considered and a few minor corrections made by the Governing Council, and final ratification was obtained and the report now stands as an official document representing the sentiment of the Members of the Association.

PART III

SCIENTIFIC SESSIONS AND SECTIONS

Many difficulties of the Association are due to hasty action taken at the annual meetings for want of time; to short tenure of office in sections with resulting lack of continuity of work; to inadequate regulations of voting power, and to insufficient linking up of section policies with those of the Governing Council. The Committee on Reorganization therefore recommends the following remedies:

A. Tenure of Office of sections should not be limited to one year. In particular, capable section secretaries should be reëlected as often as they will consent to serve. Vice-chairmen should be selected with a view to later promotion to the chairmanship of the section.

B. Instruction—Section officers should be informed of their duties by the Association Secretary through carefully prepared standard instructions.

C. Nominations—In the interest of careful selection of officers, nominating committees should be appointed in advance of the annual meeting. Names endorsed by ten Fellows must be added to the ballot if submitted fifteen days in advance of a meeting. Nominations may not be made from the floor of the meetings.

D. Annual Meeting Congestion—As many section functions as possible should be carried out before the busy annual meeting time; e. g., the preparation of committee lists by section chairmen for approval of the Section Council. Similarly, annual meeting resolutions should be handed in as early as possible.

E. Resolutions — The Governing Council should consider resolutions upon recommendation of the Resolutions Committee. In order to ensure adequate consideration, the Governing Council should continue the custom begun last year of holding a meeting each day of the convention. Manifestly, however, *no final action on any resolution can be assured unless it is in the hands of the Governing Council at least twenty-four hours before the final meeting of the Governing Council.*

F. Model Section Constitution—A model section constitution has been prepared for the consideration of the Governing Council incorporating among others most of the remedies outlined above. The proposed model constitution is based upon the deliberations of section representatives at two annual meetings, and has been very slightly modified by

the Sub-Committee on Scientific Sessions of the Reorganization Committee.

PART IV

INTER-CONVENTION ACTIVITIES

The following recommendations are made subject to the ability of the Association to secure the necessary additional funds required:

A. General Objectives—The objectives of the Association should be the preparation, study, standardization and presentation of scientific public-health procedures, the best method by which such knowledge can be given to the public, and the expression to the public of professional opinion in regard to such procedures.

B. Training Health Workers—The Association should be prepared in so far as its interests and resources allow, to coöperate with the United States Public Health Service, Medical Corps of the United States Army and Navy, and other public-health agencies in the training of field workers in the principles and practices applied in the field of public health.

C. Information File—It is recommended that there be maintained at the central office of the Association such records as are obtainable and can be kept current with regard to the organization, expenses, procedures and results of public-health practice in organized health departments in countries represented in our membership.

D. Public Policy, Legislation, Etc.—It is recommended that the Association authorize the Executive Board to act on behalf of the Association in urgent and immediate matters of public policy after an expression of judgment by the Governing Council, and in conformity therewith.

E. Affiliated State Societies—It is recommended that a special committee be empowered to confer with the National Health Council or other bodies, such committee to report back to the Governing Council upon the question of whether the development and coördination of local societies, organized primarily for mobilizing popular support for public-health work, can best be carried out by the American Public Health Association or by the National Health Council or by some other agency.

F. Sections—It is recommended that all the fundamental functional divisions of public-health practice be represented in the sections and other activities of the Association.

G. Journal—It is recommended that the policy of the JOURNAL shall be governed by the principles laid down in Resolution A. A copy of this resolution is to be transmitted to the Advisory Editorial Board of the JOURNAL with a request to advise the Executive Board of the Association of the detailed suggestions which it deems desirable.

H. Finance—In order to carry out the plans outlined above, every effort should be made to increase the resources furnished by Sustaining Memberships, and an attempt should be made also to secure special support for such activities from foundations interested in the support of public-health.

Committee on Reorganization: Dr. Henry F. Vaughan, General Chairman.

Sub-Committee on Association Government:

Dr. Henry F. Vaughan, *Chairman*
Dr. L. I. Harris
Dr. E. C. Levy
Maj. A. Parker Hitchens
Dr. W. S. Rankin

Sub-Committee on Scientific Sessions:

Dr. Walter Brown, *Chairman*
Dr. George Ruhland
Dr. Roger G. Perkins
Dr. J. W. S. McCullough
Dr. R. M. Olin

Sub-Committee on Inter-Convention Activities:

Dr. Haven Emerson, *Chairman*
Dr. L. I. Harris
Dr. C. V. Craster
Prof. C.-E. A. Winslow
Dr. F. X. Mahoney
Dr. F. G. Curtis

CONSTITUTION AND BY-LAWS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

AS AMENDED BY THE GOVERNING COUNCIL AT THE FIFTY-FIRST ANNUAL MEETING, CLEVELAND, OHIO, OCTOBER 16-19, 1922

ARTICLE I

Name

The name of this Association, incorporated under the laws of Massachusetts, is the American Public Health Association.

ARTICLE II

Object

The object of this Association is to protect and promote public and personal health.

ARTICLE III

Governing Council

A. *Composition:* There shall be a Governing Council consisting of:

1. The officers of the Association.

2. Thirty members of the Council, to be elected with due regard to geographical and membership considerations, by and from the Fellowship of the Association, for three-year terms, one-third retiring each year.

[At the 1922 Annual Meeting, thirty new members shall be elected; ten for one year terms, ten for two year terms, and ten for three year terms.]

If one of these members is elected a Section Chairman, Vice-Chairman, or Secretary, a new Councilor to fill such vacancy shall be elected by the Association.

3. The Chairman, Vice-Chairman and Secretary of each Section.

4. A representative to be appointed by the governing body of each affiliated state health society to serve for one year on the Governing Council.

B. *Terms:* Terms of Councilors shall begin at the end of the annual meeting when elected, and shall terminate at the end of the annual meeting at expiration of term; provided that Councilors shall have the right to attend meetings of the Council in an advisory capacity as soon as elected.

C. *Reëlection:* After two consecutive terms, an elective Councilor shall be ineligible for reëlection to the Council during one Association year.

D. *The Officers* of the Association shall be the officers of the Council.

E. *Functions:* The functions of the Council shall be:

1. To establish policies for the Association and for the guidance of the Executive Board and the officers.

2. To establish Sections of the Association, to combine or discontinue them when necessary, to maintain coördination among them, and to formulate general rules governing the policies of the Sections.

3. To submit to the vote of the Association all resolutions which have received the approval of the Governing Council.

4. To elect Affiliated Societies, Fellows and Honorary Fellows as provided in the By-laws.

5. To elect the Executive Board and the officers of the Association.

6. To receive from the President, on behalf of the Executive Board a report of the meetings, policies and work of the Executive Board; a report from the Executive Secretary concerning the administrative work of the year; and a report from the Treasurer concerning the finances of the Association.

F. *A Quorum* of the Council shall consist of ten Councilors.

G. *Meetings* of the Council shall be called by the Executive Secretary at the request of the President, or at the request in writing of any twelve Councilors. In the latter case, the call to meeting, issued at least twenty days in advance, shall state the purpose of the meeting.

ARTICLE IV

Officers

The officers of this Association shall be a President, three Vice-Presidents, an Executive Secretary, and a Treasurer. The officers shall be nominated and elected by written ballot of the Governing Council. Officers shall serve from the close of the annual meeting when elected, until the close of the next annual meeting, and until their successors are elected and qualified. A majority vote of the Councilors voting shall be required to elect, and if no candidate receives a majority vote on the first ballot, the candidate receiving the smallest number of votes shall be dropped after each ballot in succession until a majority vote is obtained.

ARTICLE V

Amendments

This Constitution may be amended by a two-thirds vote of the members of the Association present and voting at an annual meeting, provided that the specific amendment to be acted upon is published in the official publication of the Association not less than thirty days prior to the meeting, and provided further that the amendment has received the approval of the Governing Council.

BY-LAWS

ARTICLE I

MEMBERSHIP AND DUES

A. There shall be six classes of constituents who may be elected from the countries now represented in the Association and such other countries as may be admitted. The respective appellations, qualifications for election, and dues shall be as follows:

1. *Fellows:* Only professional health workers of at least two years standing as members of the Association and of established professional standing (whether employed by public or private agencies or in independent private practice) shall be eligible for election as Fellows.

The application for Fellowship shall be sponsored by two Fellows of the section in which affiliation is desired. The application shall then be transmitted through the Executive Secretary to the Section Council, and if approved shall be voted upon by the Governing Council, provided the name of the applicant shall have been officially published at least fifteen days in advance.

[The Governing Council and Section Councils are to serve during the 1922 Annual Meeting as the initial nuclei of Fellowship groups without further nomination or notice, provided furthermore, that the aforesaid requirements of two vouchers from and endorsation of the Section Council and the requirement of fifteen days' notice do not apply to the first group of Fellows elected.]

A Fellow may belong to and vote in only one Section, but such affiliation may be transferred to another Section if approved by vote of a majority of the Council of the latter Section.

The right to vote in the Sections and in the Association shall be limited to the respective Fellows of such groups. The right to hold office or to serve as chairman of a committee shall also be limited to Fellows.

The dues of Fellows shall be $10 per year.

2. *Honorary Fellows:* Honorary Fellows may be elected by the Governing Council for distinguished service in public health. Honorary Fellowship shall not include voting power or payment of dues.

3. *Members:* Persons active in the service of public health may be elected as Members. They may serve on committees, except as chairmen. Dues $5.00 per year.

4. *Associate Members:* Persons interested in public health shall be eligible as Associate Members. They may serve on committees, except as chairmen. Dues $5.00 per year.

5. *Sustaining Members:* Individuals or corporations interested in public health may be elected to Sustaining Membership. Dues $50 or more per year.

6. *Affiliated State Public Health Societies:* State public-health societies, or associations primarily promoted as organizations of professional public-health workers for the same general objects as those of the American Public Health Association, shall be eligible to election as Affiliated Societies. There shall be only one such Affiliated Society admitted from each state. Dues: One Dollar per thousand of annual budget appropriation, the maximum dues per society being one hundred dollars, and the minimum dues ten dollars per year.

A state public-health association applying for affiliation with the American Public Health Association shall send with its application a copy of its constitution, last annual budget, and such other evidences of its qualifications as such state association may desire to submit, or as may be required by the American Public Health Association.

B. *Election.* The election of Fellows (See A1 above), Honorary Fellows and Affiliated Societies shall be by the Governing Council.

The election of Members, Associate Members, and Sustaining Members shall be by a committee appointed by the Executive Board.

Three-fourths of the votes cast shall be requisite for election.

C. *Dues.* Dues are payable annually in advance. All constituents paying dues shall be entitled to receive the AMERICAN JOURNAL OF PUBLIC HEALTH and, or, such other publications as may be designated by the Executive Board, which shall determine the proportion of dues to be devoted to this purpose.

ARTICLE II

EXECUTIVE BOARD

A. *Composition:* There shall be an Executive Board of nine members elected by the Governing Council, six of whom shall be members of the Governing Council, and three of whom shall be the President, Executive Secretary and Treasurer.

B. *The Terms* of the officers as Executive Board members shall be one year each, and the terms of the other members shall be two years each, expiring in rotation, three each year. These terms shall begin at the end of the annual meeting at which elected, and shall continue until the end of the annual meeting at expiration of term, provided that newly elected members of the Board shall have the right to attend meetings as soon as elected, and shall have no vote until installed.

C. *Reëlection:* After two consecutive terms a member of the Executive Board shall be ineligible for reëlection during one Association year. This provision shall not apply to an officer of the Association.

D. *The Officers* of the Association shall be the officers of the Executive Board.

E. *Duties:* The duties of the Executive Board shall be:

1. To direct the administrative work of the Association.

2. To act as trustee of its properties.

3. To procure funds and to authorize budgets for the Association work.

4. In general to carry out the policies of the Governing Council between meetings of the latter.

F. *A Quorum* of the Executive Board shall consist of four Members.

ARTICLE III

MEETINGS OF THE ASSOCIATION

There shall be at least one annual meeting of the Association, held at a place to be selected by the Governing Council. Special meetings of the Association may be called by a majority vote of the Governing Council, the Executive Board, or the Association.

ARTICLE IV

SECTIONS

Sections shall elect their own officers. They shall conduct sessions in coöperation with and under the supervision of the Executive Board. The Constitution and By-laws of Sections and amendments thereto shall be submitted for the approval of the Governing Council, and shall be valid only after such approval.

ARTICLE V

PUBLICATIONS

All publications of the Association and of its Sections shall be issued under the direction of the Executive Board. The Executive Board shall appoint a Managing Editor of the official journal, who may also be the Executive Secretary of the Association. The Executive Secretary shall, with the approval of the Executive Board, appoint an Advisory Editorial Board of not less than five members, to serve at the pleasure of the Executive Board. All papers and reports for the annual meetings are to be accepted with the understanding that they shall be the property of the Association for publication, except as specifically released by the Advisory Editorial Board.

ARTICLE VI

FINANCES

The Executive Secretary shall receive and deposit to the account of the Treasurer all remittances sent to the Association. The Treasurer shall be custodian of investments of the Association and shall disburse funds in accordance with duly authorized vouchers. With the approval of the Executive Board he may establish a drawing account for the Executive Secretary. The Executive Secretary shall send each month to members of the Executive Board a financial summary of receipts and disbursements. Once each month, or oftener if called for, he shall also forward to the Treasurer and President an itemized statement of all expenditures. The Executive Secretary and the Treasurer shall be bonded at the expense of the Association in an amount to be determined by the Executive Board. The books of the Association shall be audited annually by certified public accountants, to be appointed by the Executive Board.

ARTICLE VII

COMMITTEES

Committees of the Association shall be authorized by the Governing Council or the Executive Board. The President shall appoint the members of such committees. Such appointments expire at the next annual meeting, unless otherwise specified.

ARTICLE VIII

AMENDMENTS

These By-Laws may be amended by a majority vote of the total membership of the Governing Council during the annual meeting, provided that twenty-four hours prior written notice thereof has been given. The By-Laws may further be amended by a two-thirds vote of those voting at any meeting of the Governing Council called for the purpose; provided that notice thereof shall have been given at least fifteen days prior to such meeting.

□

Pasteur Centennial.—An urgent request is made by the Library Committee of the New York Academy of Medicine to members and others, to lend Pasteur memorabilia, such as letters, manuscripts, photographs, engravings or pictures of any kind having to do with the life work of Pasteur. These would be used for the Academy Pasteur Celebration, December 27, 1922, to January 10, 1923. All communications should be addressed to Mr. J. S. Browne, Librarian.

✣

Patent Medicines Still After Patents.—In looking over a recent issue of the weekly *Official Gazette of the United States Patent Office,* the applications of 50 medicines for patents were found. These included a couple of kidney medicines, a bladder remedy, a cure for syphilis, liver pills, cure for piles, lung tonics, headache powders and salves, foot powders, cough and bronchial medicines, rheumatism treatments, hair restorers and tonics, cold inhalers, mouth tablets and washes, wound salves and medicines, hand lotions, pyorrhea treatments, indigestion cures, disinfectants, female disorders remedies, cold cream, and numerous skin tonics. There was also a sewer cleansing apparatus. It is needed. (J. A. T.)

SYMPOSIUM ON THE NEXT STEP FOR STATE HEALTH DEPARTMENTS

Read before the Public Health Administration Section of the American Public Health Association at the Fifty-first Annual Meeting, Cleveland, October 16, 1922.

I

EUGENE R. KELLEY, M. D.
State Commissioner of Public Health, Massachusetts

When I was asked to present a paper on the subject of the next step in health work, I accepted without having fully decided in my own mind what I should define as the "next step." On seriously approaching the matter, it is surprising how many subjects in the health field can present good claims to this distinction. Most insistent of all at the present time is the large subject of maternal and infant hygiene. No one can deny the basic importance of this division of the province of hygiene. Its immediate potentialities in life saving doubtless far outweigh those of almost any other of the well-recognized broad divisions of public health. Due to the enactment of federal legislation on the subject, it is receiving far more publicity and attention than any other phase of general hygiene.

It is only a scant four years ago that the problem of venereal disease was for the first time being given general public recognition in this country, and surely no one in this gathering will venture to assert that the venereal disease step has been completed.

Then there is the subject of dental hygiene. I have been deeply impressed as has every sanitarian in the past few years with the significance of this movement. It must be admitted that the proponents of dental hygiene are making their case stronger every year. Aside from necessary corrections of extravagant claims made by some dental hygiene enthusiasts in the past, it is now recognized that many systemic developmental defects as well as much systemic disease can be traced directly back to faulty dental development and diseased dental conditions.

Closely allied to dental hygiene is nutrition. At one time I nearly decided upon nutrition as the most fundamental next step in hygiene. Certainly the subject presents impressive arguments for consideration on the grounds of its prominence and the pressing need for a more intelligent appreciation of its fundamental importance by physicians, dentists, nurses, professional health workers, educators and the general public as well. The dramatic object lessons in malnutrition furnished by European experience during and since the war, and the astounding results of physical examinations by skilled pediatrists of representative groups of American school children, emphasize the importance of nutrition as a health problem. (In certain prosperous rural sections of Massachusetts a pediatrist of the State Department of Public Health found a higher proportion of serious malnutrition among the school children than she had found in two years' work during the war in France among the refugee children.)

The view now practically universally accepted that malnutrition in childhood is one of the strongest factors in the later development of tuberculosis, the increasing economic problem of supplying balanced rations for the average family on the average family income, the wonderful results obtained by skilled supervision of the nutrition of below-par children, are but a few additional testimonies among many as to nutrition's importance in a health program. And how far we as a nation fall short of really intelligent application of the simplest and most rudimentary principles of sound nutrition, only the health worker and domestic science expert remotely

comprehend! But I must check myself or I will soon be devoting the greater portion of the time allotted to me to the consideration of nutrition, after all.

There is another subject which is just coming into at least a fractional recognition of its far-reaching significance by a small proportion of professional health workers, and a still smaller proportion of the general public. This is the subject of mental hygiene. Mental hygiene is still in a nebulous state. Just what the place of mental hygiene will be in the activities of health departments, as this subject becomes more clearly understood and better appreciated, is not yet clear, but that it will yearly loom larger and larger on the horizon of the world of hygiene for a long time to come is unquestionable.

In addition to these subjects just referred to, all of which may be considered as problems in health-work dynamics, there are fascinating problems in health departmental mechanics which deserve consideration as pressing "next steps." For example there are the problem of the full-time health official; the problem of efficient health administration for rural areas; the problem of specialization versus generalization of various groups of technical personnel; the problem of the proper adjustment and relationship of federal, state and local health departments, and the intricate problem of the relationships and relative functions of the health departments and the ever increasing group of voluntary or volunteer health organizations.

These subjects are all of great weight, and call insistently for immediate attention and further development, but I have finally decided that none of them is really the greatest next step that faces American health workers. Or it might be more accurate to say that they are all but different aspects of the great central problem that has always faced health workers, and is daily growing greater—the problem of the diffusion of already well-demonstrated hygienic knowledge in a form easily assimilable by the great mass of our fellow citizens.

Nor is mere transmission of knowledge the whole problem. We must transmit this knowledge along lines and by methods that will be so psychologically convincing and impelling that our fellow citizens will follow the principles of personal hygiene by habit, and after a lapse of time semi-instinctively.

This problem, the problem of "getting it over," is the most serious next step before health administrators, educators, and the voluntary health organizations alike, and it becomes more and more necessary for it to receive adequate appreciation and more adequate allotment of health department funds in proportion as the message of health work becomes more and more individual and involves a greater and greater degree of active coöperation from the individual citizen. It is a much more intricate problem in sociology and mass psychology, as applied to health work, to save ten infant lives by well-known methods of prenatal, natal, postnatal teaching and care than it is to save ten lives by the installation of a safe municipal water supply, although the financial cost of the latter far outweighs the cost of the former. In the latter case the public has already been "sold," to use the advertising men's phrase, on the value of a pure water, and furthermore it requires no initiative on the part of the householder beyond voting for the bond issue and paying his proportionate share of the increased water rates.

The problem of the application of useful health knowledge in the interests of everyone is always a harassing one and cannot be carried out solely by whirlwind publicity methods or freak advertising schemes. The fact that the advanced thinking and pioneer discoveries of one century or one generation become part of the rudimentary instruction or are utilized in the every-day life of the next generation or century is a matter of common knowledge, as the relation between

Galileo's revolutionary doctrine and our second-grade school instruction in geography, or between Franklin's kite and the telephone, bears daily witness. The point is, that we today see so clearly the appalling loss of human life and the perhaps even more appalling loss of human productivity, efficiency and happiness due to the failure on the part of our nation as a whole to follow and carry out relatively simple hygienic principles and practices, that we are no longer content to wait for the slow evolutionary processes of the centuries and the generations to "get our message over," but acknowledge an imperative obligation to anticipate this slow movement of the "mass mind" that usually characterizes the development of the widest possible utilization of discoveries inherently beneficial to the race.

Two general methods of accomplishing the wide diffusion and application of public-health knowledge are naturally coming to the front. They may perhaps be designated as the autocratic and the democratic. One concept of how best to reach all our fellow citizens effectively with the life-lengthening, life-broadening and life-brightening message of modern hygiene is to prod them into routine utilization of its teachings; the other concept is to lead them to it, but to lead them faster than has ever been done before in the world's history.

The autocratic method takes for its basic principle certain indisputable weaknesses of human nature in the mass, and argues that the inertia of the average is always so great that it is hopeless to wait for the mass of our citizens to take the initiative in matters of hygiene. When we consider epidemic disease and great community sanitation problems we see that much of health department development and practice has already followed along autocratic lines.

It is also obvious that this type of procedure offers frequently the quickest road to results. From the doctrine that the end justifies the means, the temptation to advocate compulsory, autocratic methods in infant hygiene or dental hygiene, for instance, is extremely strong, particularly if we allow ourselves to be misled by the superficial analogy between these fields and small-pox or diphtheria control. Moreover, the advocates of "direct action" in health work, can always point out the wonderful fashion in which that system has worked out under military conditions, or in Panama in civil life.

Compulsory health insurance, proposals to apply forcibly negative eugenic procedures, state control of medical practice, all logically come to the front when once the principle of forcing wider observance of hygienic laws by autocratic methods is accepted and advocated. Nevertheless, I believe this principle is basically unsound and that we should strive against the omnipresent tendencies to utilize this method in spreading the gospel of the goddess Hygeia, lest our last state be worse than our first, and we find that we have opened the doors for faddism and for irksome interference by government in family and personal affairs to an extent which even the conceded health advantages cannot justify.

If we reject the mandatory route and are not content to await the slow process of gradual diffusion of health knowledge outward from our research centers, our hospitals, laboratories, healing professions, and health workers of all types, but one thing remains for the health workers of this country to do. It is to devise new, more effective and more fruitful measures for real health education than have ever been dreamed of before. In the past we have made considerable effort in this direction, but there exists a valid scepticism as to the permanency of the results from some of these methods. For instance, it still remains unproved whether the display page and bill board method which can successfully create and maintain in the American public's palate an unquenchable desire for a given brand of chewing gum will work as successfully in arousing an intelligent, continuing in-

terest in the veneral disease problem.

In this field there are certain inherent psychological difficulties that have never been sufficiently reckoned with by us, although we all must recognize their existence. Among these is the instinctive tendency of the adult to ignore completely the so-called involuntary physical mechanism unless it gives symptoms of distress. It is difficult to interest any one who has never felt a single pang of indigestion in the doctrine of the "balanced ration." It is impossible to get the really well person, brimming with the joy of life, definitely interested in any sort of exercise or hygienic procedure *as an end in itself*. Unless the exercise, such as swimming or golf for example, is pleasurable in itself it will never be zealously followed by the average person.

I will frankly confess to considerable skepticism as to how much permanent impress of value our health propaganda makes on all of us adults. Even we ourselves, engaged in health work very seldom match up our practice with our precept. It is almost entirely due to faulty health habits and erroneous dietary tastes established in early life that we do not better measure up to our own knowledge and professions. If this be the case in a group whose whole life interest centers in the advocating of better hygiene, how much more difficult and even unreasonable to expect our fellow citizens to shape their daily existence in accordance with the best hygienic principles—even though we all realize how great are the rewards for so doing. Cornaro, the Venetian, the late Stephen Smith, founder of our association, and John D. Rockefeller, Sr., three notable examples of longevity, unite in attributing their long lives principally to a delicate digestion which necessitated their careful attention to hygienic rules.

I would not be understood to advocate that we should cease to attempt to interest our fellow adult citizens in the possibilities of communal and personal hygiene. Far from it! I feel that we should give them much more heroic doses of information and argument than we have ever done hitherto, on the principle that if we keep at it long enough and earnestly enough, some of it will stick, be taken to heart and acted upon to the great benefit of all. I am trying to make the point that we must not expect too much revolutionary change in the habits, thoughts and prejudices of this group. But there is one group among us where it is possible to a considerable extent to get a response to and an interest in health habits as an end in itself. It is also the group where it is still possible to find an open mind, and unformed or but partially-formed habit paths. This group is of course the school children of America.

Among our child population up to maturity the field is wide open, the facilities for reaching this group *en masse* are already provided, and it is here that we should concentrate our greatest energy, our ablest minds and the most of our available funds. To do this successfully means the evolution of a new type of person who shall bridge the gap between the health worker, particularly the medically and nursing trained health worker, and the professional teacher or pedagogue. I believe the great and spreading interest in physical education offers a hopeful prospect in that this subject as it develops may serve as a natural stepping stone for the furtherance of general hygienic training in childhood. But at all events a new technique must be developed. There must be a closer alignment of interest between the health and educational authorities and among the three great professions of teaching, medicine and nursing, to bring about the greatly-to-be-desired result. In the past too much time has been lost, and too much energy needlessly dissipated in fruitless discussion, even mutual bickering, as to whether health departments or school boards should control medical school inspection.

Medical school inspection, as the term has hitherto been used, has proved a useful and forward step in the guarding of

community health and the checking of exanthemata. It has even served as a basis for furnishing a large amount of excellent but usually totally disregarded advice to parents concerning the physical, and in late years even once in a while concerning the mental shortcomings of their children. But what a weak and incomplete sort of a device our traditional medical school inspection system is, and how insignificant are its results compared to the results that might be achieved from a well balanced nation-wide child hygiene program!

This then is our real next step: to mobilize the medical profession, the nursing profession, the teaching profession, and all their allied groups, the dentists, chemists, domestic science and nutrition experts, in one active interested group whose objective shall be that every American child shall have a fair chance to be well born; shall receive suitable nutriment; shall be trained in sound hygienic habits during infancy and early childhood; shall be adequately safeguarded against avoidable infection; and on passing on to the school period shall be taught proper health habits and the reasons for them; shall be taught simple but scientifically correct hygienic principles in place of the hodge-podge of misinformation, superstition, ignorance, and old wives' tales that were the basic instruction in hygiene of most of us; shall be given opportunity for the correction of incipient physical defects through a wisely-developed system of physical education, supervised play and work; shall be taught what to eat and why; and shall be started right in his emotional and mental life.

If these things are done, many of the problems which most seriously harass us as health administrators will solve themselves and disappear. Nor is this program, ideal as it may sound in many ways, one impossible of achievement or fantastic in scope. It does not involve an excessive additional amount of financing to place it in full operation. In many ways the bulk of the American people today are ready and eager to support the development of such a program. It involves simply a full and honest getting together of the leaders of American education, medicine, nursing, and the other professions interested in the advancement of public health, to make such a program a complete reality within the life of the present generation.

II

W. S. RANKIN, M. D.
State Health Officer, Raleigh, N. C.

EMPHASIS SHIFTING FROM DISEASE PREVENTION TO HEALTH PROMOTION

The next step for state health departments is to realize that we have reached a time when the emphasis in public-health work is shifting, and will shift much more, from disease prevention to health promotion, and to recognize that such transfer of major interest introduces important changes in the public-health program.

The evidence that there is a rapidly shifting interest from disease prevention to health promotion is abundant and convincing. Witness the thought, time and effort now being devoted to such problems as maternity care, infant clinics, improvement of the health of public school children, including the Health Crusade Movement, the detection and treatment of common defects, school lunches and nutrition work, the development of oral hygiene and dental clinics, the rapid advance of industrial hygiene, and the expansion of the idea and practice of periodic physical examinations of the ap-

parently healthy—all of these activities being concerned more with the positive ideal of health promotion than with the negative and more restricted ideal of disease prevention.

The reasons for this shifting of interest from the negative to the positive field of public health are: first, the diminished and diminishing prevalence of communicable disease, with a corresponding restriction of opportunity for health departments to lower the death-rate and increase longevity through efforts directed to circumscribing infectious foci; second, the enlarged and enlarging appreciation by health departments of the many opportunities to conserve and to advance the general health of the public through efforts directed toward raising the general level of health by the improvement of personal hygiene and the physical status of the average citizen.

IMPORTANT CHANGES IN THE PUBLIC-HEALTH PROGRAM

The important changes which are brought into the public-health program through this transfer of major interest of health departments from prevention to promotion, from disease to health, are: 1. As in the training of a child he is first taught what not to do and then what to do; as in the early moral training of the race under the old Mosaic dispensation, the restrictions of law and ordinances, "thou shalt" and "thou shalt not," were necessary, but passed away with the new dispensation of Him who came to fulfill the law by giving the people a larger vision and a quickened conscience; so in the future of public-health, regulatory legislation will become less and less a factor, and education correspondingly more a factor in vital conservation. 2. Health departments in the future instead of concerning themselves less with that small group of diseases, the communicable diseases, each of which at one time or another endangers a small minority of the population, the susceptible population, will concern themselves more with the entire field of both pathology and physiology as the two are related to the whole population, sick and well alike. 3. Under the old order of disease prevention there was, so to speak, a well defined line of demarcation separating the work of those interested in social medicine from the work of those interested in private practice. Under the new program the aforementioned line of demarcation will disappear, and there will be a blending of the work of health departments and profession. 4. Under the old program the field of activities was restricted and personnel limited as compared with the expansion of the future field and the tremendously enlarged personnel engaged. This enlarged personnel for the future program, because of the qualifications necessary, can be drawn from and supplied by only one group of society, namely, the medical profession. 5. The medical profession, in assuming definite public duties, in adding to the field of private practice the work of social medicine, will and should expect reasonable remuneration from society. 6. Health departments in making up their future budgets will have to consider (a) the particular activities of a public character which may be and should be performed by the rank and file of the profession, and (b) a reasonable piece-work payment for the performance of such duties.

MUTUAL INTERESTS OF PUBLIC AND PROFESSION

The fusion of functions and forces in the work of social and private medicine centers on the realization by the public and profession of the fact that their interests are mutual and not conflicting.

There still exists an all too prevalent feeling, based upon superficial reasoning, that certain health interests of the public are in conflict with some of the business interests of the profession. This feeling

is frequently expressed in public meetings, not only by representative members of the profession but by laymen, in the statement that the medical profession is the only group of society bent upon curtailing its own field of usefulness and thereby diminishing its income. The profession of medicine may eliminate certain diseases, but in doing so it does not restrict, but on the contrary expands, its own field of service and increases its financial rewards.

For example, let us note that the medical profession, through its discoveries and their application, has eliminated from the list of diseases typhus fever, and, practically speaking, yellow fever; however, in doing this it has only saved the victims of an acute, short illness for other diseases, and more especially for the more chronic, long continued, professionally more remunerative, degenerative diseases of later life. Again, but for the work of the medical profession smallpox would now be causing about 200,000 deaths and endangering seriously the lives of 1,000,000 people each year in the United States. Instead of this, those who would have had that disease, and those who would have died from it, have other diseases, many of which are more lasting in their duration and more remunerative for the profession. And further, if, in the course of the next ten, twenty or thirty years, the great death-rate of infancy could be all but eliminated, then many of the babies saved would live, instead of two years, fifty, sixty or seventy years, would have babies themselves, and suffer many and more chronic diseases, with a great increase in their use and remuneration of doctors. The old axiom "Don't kill the goose that lays the golden egg" professionally applied, is "Don't permit to die, within a brief span of years and with an acute disease, the potential patient for a period of sixty years who will make many professional calls and finally settle a bill for professional services for the treatment of some chronic disease of old age." No, the profession does not suffer, not even financially, in the elimination of the acute fatal diseases; it gains tremendously, and society gains still more.

If we raise our sights and look yet farther ahead, even beyond the field of the pathological, we may easily envisage the time when medicine will extend its beneficent services from that small percentage of the population that we call sick, to include the whole population, the sick and the well, relieving and curing the sick and raising the well to a higher level of physical vigor and efficiency. Indeed, this extension from the limited field of pathology to the immense field of physiology is already under way with the dentist and with the pediatrician in the more enlightened centers of population. The field of medicine will never shrink; it will continually expand to the advantage of the profession, both in opportunities for service and reward, and immensely more to the advantage of the public.

Fortunately, the old viewpoint of professional suicide in the service of humanity is gradually disappearing as the profession sees more and more, not the conflicting interests, the existence of which is extremely doubtful, of public and profession, but the larger mutual interests, the existence of which is perfectly clear. Elsewhere the writer has pointed out in some little detail the mutual interests of the profession and the public, and will here recapitulate very briefly.(See *Journal American Medical Association* for July 22, 1922, page 281.) The field of maternity, including the pregnancy, labor and puerperal state of 2,750,000 women annually in this country, can easily be shown to be supplied with not more than one-third, probably not more than one-fifth, of the medical science and medical service which both the public and professional interest demands. The field of infancy and childhood, with a constant supply of 5,000,000 infants under two years of age needing and entitled to a certain amount of medical supervision, with 1,500,000 cases annually of well marked diarrhea and enteritis, with

700,000 cases annually of the four commoner communicable diseases, with 1,000,000 public school children retarded and retarding their classes on account of diseased tonsils and adenoids, with 4,000,000 public school children with visual defects needing supervision and correction, and 15,000,000 school children needing dental treatment, furnishes a field of practice again not more than one-third or one-fifth supplied with the medical services which the interests of both the profession and the public require. Passing into the field of adolescence, we come upon the diseases of the pre-marital state, the venereal diseases (2,000,000 fresh cases each year added to the uncured cases of many previous years,) a disease problem that largely sustains three specialties—genitourinary surgery, gynecology and skin diseases—and then liberally contributes to the general run of practice. Here again the occupied field of medicine is not over one-third, probably not over one-fifth or one-sixth, as large as that which is unoccupied, and which calls insistently in the interest of both the public and profession for more medical science. Passing to adult life, securely resting our conclusions on the investigations and findings of the Life Extension Institute, we have a field of adult pathology but one-fifth provided for. And so we see that the field of opportunity and service is white unto the harvest, but the laborers are few. The profession needs the work; society needs it more. The opportunities of the profession, in both terms of service and financial reward, harmonize with the needs of society, and the interests of the public and the profession are blended inseparably.

PROGRAM OF RELATED ACTIVITIES BASED ON MUTUAL INTERESTS

The first step in any satisfactory program of related activities on the part of the public and the profession is a mutual understanding as to what part of such a program should rest upon the profession, and what part should rest upon the public. In considering related responsibilities and duties, our task is simplified if we will think of such responsibilities and duties under the main classifications of public-health functions; namely, alministrative, educative and executive.

Administrative Functions

The administrative functions may be subdivided into three: finance, control and direction.

The financing of public-health work is a responsibility resting entirely upon the public for the reason that the work is for public betterment.

The control of public-health work should be vested in a commission or board that is non-partisan, removed as far as possible from political interference and turn-overs, and with its stability protected through the appointment or election of its members in such a way that there is no sudden or complete change in personnel. This last desideratum is provided for by organizing the initial commission or board of members with varying periods of service, some two, some four and some six years, and providing that their successors be appointed or elected for definite periods of service, say four, six or eight years. In this way we obtain a controlling organization which is subject to molecular death, undergoing now and then a replacement of individual members, but never suffering molar death, a sudden and complete loss of life with an entirely new board as its successor. Stability of organization insures far-sighted intsead of temporary policies. continuity of purpose in place of frequent changes of program. In this controlling body should be represented both the public and the professional interests, with the former slightly in the majority, on account of the principle of public control of public expenditures. However, it is important that the profession be well repre-

sented in the controlling body in order to provide the professional viewpoint and experience, and to harmonize the professional and public activities in a program of mutual interests.

The direction of public-health administration must naturally be centered in a single executive, who should be chosen by, and under the control of the administrative body. The director, that is, the executive of the controlling body, should be a graduate of medicine, because (1) public-health work is dependent upon such knowledge as is acquired only in a course leading to the degree of doctor of medicine or doctor of public health, and (2) it is necessary for the executive to understand the professional viewpoint and to be able to work in cordial coöperation with organized medicine.

Educative Functions

The educative functions include all activities directed toward raising the general level of intelligence with respect to medical science, increasing popular appreciation of the benefits of applied medical science, and so enlarging the usefulness of medical practice. Briefly, we may classify the educative work that is necessary in developing the mutual interests of the public and the profession under three headings: (1) education by the written word, (2) education by the spoken word, and (3) education by demonstration.

Education by the written word has been fairly well developed and extensively applied. It supplies central agencies, either public, social or philanthropic, with 90 per cent or more of their opportunities for advancing public intelligence and appreciation with respect to the value of medical science and the use of the medical profession. It affords the principal available means through which an agency, limited in personnel and money, may reach the largest possible population. This sort of educational work should be continued and expanded in every possible way, but its limitations must be kept in mind. Its limitations are: (a) that it does not reach a large proportion of the population, the non-reading public, and (b) like the barrage in battle, fired from some distant point, its effect is scattered, preparatory, incomplete, and dependent for full effect upon being followed by other more intensive educational activities; just as the barrage in battle is more or less useless unless followed by the hand to hand work of the infantry.

Education by the spoken word has lagged far behind education by the written word. In fact, as a potential agency in developing the interests of both public and profession it is in its infancy. Moreover, education by the spoken word is the only education that reaches the non-reading public; it is education that adds to information inspiration to the dead letter, the spirit that gives it life; it is education that supplements the influence of the Bible with that of the preacher. The spoken word may be applied in two ways: (a) by addressing groups collectively, and (b) by meeting individuals at definite times in regular, organized conferences.

Education by demonstration is one of the most useful and, it is safe to say, necessary means for emphasizing in the public mind the importance of a disease or defect, and for popularizing certain forms of treatment. The purpose of demonstration of treatment must be kept clearly in mind, namely, that it is not intended as a precedent to be extended to include the treatment, by the state, of diseases in general; but that it seeks only the development of popular appreciation of certain forms of treatment to the point that the people may be influenced to make greater use of the medical profession in securing the needed forms of treatment. Education by demonstration is called for under two conditions: (1) to popularize a new treatment of great significance to the public welfare, as in establishing the wide general use of a recently discovered potent vaccine, such as typhoid vaccine, or the use of toxin-antitoxin; (2) to

develop a general demand for the treatment of some great disease surplus, such as venereal diseases, diseased tonsils and adenoids, defects of teeth and gums and, in certain sections of the country, malaria, hookworm disease and trachoma.

The part of the medical profession in the educative functions of public-health work is: (1) to assume the responsibility for advancing through their local societies the education of people collectively, and in organized conferences or clinics (the possibilities of such an educational program, organized and carried out by county medical societies, have been pointed out in some detail by the writer in the article appearing in the *Journal of the American Medical Association,* July 22, 1922, page 281); (2) to take the initiative, and thereby place themselves in a creditable position with the public, in organizing and directing the local campaigns of treatment for the purpose of demonstration and, further, themselves to demonstrate the treatment, not as a charity, but for reasonable remuneration by the county or town in which the treatment campaign is carried on.

Executive Functions

The executive functions in a well organized plan of public-health work include: (a) securing from physicians, midwives, undertakers and parents information as to the causes of death, the occurrences of births, and the appearance of outbreaks of communicable diseases; (b) enforcing fully and without fear or favor the laws and the rules and regulations governing quarantine; (c) securing the adoption and enforcement of laws, rules and regulations necessary to protect and insure adequate and safe public water supplies; (d) operating public laboratories to assist the profession in diagnosis, to assist the profession in the treatment of diseases requiring biological products, expensive to their patients, comparatively speaking, when not supplied at public expense, and to make analyses of samples of public water supplies to determine their purity and safeguard their use; (e) providing for and supervising the operation of certain public institutions for the care and treatment of chronic and incurable diseases which impose an economic burden on the average family in excess of its means and which can be borne effectively only by united community effort; (f) maintaining an inspection service that shall insure to a reasonable extent the sanitary maintenance of public institutions, hotels and cafes; (g) organizing, through the medical profession, demonstration treatment campaigns and clinics which are necessary in dealing with major problems of disease and defects, important to the public and profession alike, to the end that such problems may be sufficiently impressed upon the lay mind to insure their more adequate treatment by the profession; (h) providing, through an understanding with and organization of local medical societies, for the treatment of the indigent sick at the expense of the public rather than as a charity to be onerously and inadequately borne by the profession.

The part of the medical profession in the executive functions of public-health work is: (1) to furnish such information to the public or its agent as is necessary for the public to know its vital condition and to protect itself against unnecessary disease; (2) to take advantage of the provisions of the public in the way of laboratories for more accurate diagnosis, and for less expensive treatment where otherwise expensive biological products would be called for; (3) to assume the initiative and responsibility in the organization of such local treatment measures as are needed in the interest of both the profession and the public, (a) for supplying more adequate treatment at the public's expense instead of the profession's expense for the needy, and (b) for developing such demonstration treatment campaigns as are needed and necessary to

popularize the treatment of certain conditions of exceptional public importance.

CONCLUSIONS

The next step for state health departments is the development of a program of related activities on the part of public-health agencies and the organized medical profession built up about the mutual interests of both parties concerned. In such a program the writer has sought to suggest only briefly the more important phases of the relationship to be assumed by the public and profession. Such a program is certainly subject to important alterations in order to adapt it to varying local conditions and to conform it to accumulated experience; but the principle involved in this paper is that the time is now here when the public and the profession must solidly unite in their attack upon disease, both that which is present and that which is anticipated, and when organized medicine should and will take the same active interest in social practice as the individual member of the profession has heretofore taken in dealing with the problems of private practice.

III

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Broadly speaking, a health department's next step is the democratization of its functions. Our knowledge has outrun its large application. In so far as transmissible diseases and the sanitarian are concerned, the next step in communal health should be a concentration of effort against those infections attended by the largest morbidity and mortality, and which laboratory and clinic have shown to be completely controllable.

We know the cause of diphtheria and can safely, simply and effectively prevent and cure it. Today's statistics bearing on its incidence and case fatality are creditable neither to the health officer nor the doctor.

In Pennsylvania, the issuing of free antitoxin to the doctors, and the enrollment of municipalities, the schools, the press, the church, business, labor, welfare organizations and the women in an educational campaign was followed by a drop in mortality which may have been incidental, but which has been partly maintained.

To every doctor reporting a diphtheria death is sent a letter with a questionnaire; answered, with few exceptions, cordially, fully and helpfully. Some hundreds of replies show that in the fatal cases there was an average of over four days in securing medical service, and an average of more than 24 hours in making the diagnosis. The delay was not marked in the nasal cases. Control replies from 200 doctors whose cases recovered, showed that there was an average delay of one day in securing medical help, and that less than 11 per cent failed to make the diagnosis on the first day.

A prompt calling of the doctor, nasal cultures, an immediate full dosage of antitoxin intramuscularly on reasonable suspicion, are the means of lessening mortality. To accomplish this a sanitarian must have the active and coördinated support of municipalities, the press, schools, churches, business, labor, welfare organizations and, underlying and driving each and every one of these, women.

Considering some of the individual factors upon which the sanitarian depends in his wholesale guarding of health; without the full coöperation of the medical profession, the activity of any health department is largely unavailing. This cordial coöperation can be secured, provided the department confines its efforts to prevention, and scrupulously

avoids state medicine. The Pennsylvania department treats the tuberculous and venereally infected who are unable to pay, only because these are transmissible diseases. When the profession will take over, and make each clinic an active center of control, rather than a place to which those may come who so choose, the state will gladly transfer these clinics.

I spoke of the full coöperation of the doctors—this does not mean all of them. The profession of medicine is made up of three groups: an upper third—leaders in research, thought and helpful action, self immolating altruists, the flower of civilization; a middle third—strong, able, clear minded men, who follow the lead of the upper third; and a lower third—prejudiced, ignorant, self centered, whose approbation is undesirable. The sanitarian must have the upper two thirds with him; the lower third against him.

The nurses may be roughly classed as are the doctors: upper, middle and lower thirds. The upper and middle thirds are priceless boons to the community; the lower third almost as pernicious as the corresponding class of doctors. A health department cannot successfully administer without the public-health nurse, who, if wisely chosen, will respect the rights of the doctor and add to his honor and influence. If she be of the lower third she will embitter, and justly so, the best men of the profession.

As to syphilis, the most universal, deadly, and crippling of all transmissible diseases, we know its cause and how, promptly, safely and surely it may be made non-transmissible; and, if treated in the early stages, probably cured. At present it remains the curse of civilization. In Pennsylvania there are clear signs of a waning incidence, due in part to activities stimulated by the health department, made possible by monies contributed by the United States and Pennsylvania ($270,000 in the last two years), and made fruitful by empowering legislation, the help of the medical profession, of the Roman Catholic Church and municipalities and welfare organizations. To the poor, medicine and treatment are free. Those able to pay are referred to the hospitals which make a moderate charge, or to competent physicians who have fixed their minimum fees.

There are 51 state clinics under specially trained physicians, assisted by 151 public-health nurses, whose special function, aside from helping in the clinic, is locating and bringing to these centers the foci from which those coming for treatment acquired their infection. There are 156 coöperating clinics. There are 390 state troopers who have been made health officers and who, when gentler means fail, bring probable or real menaces to the clinics, establish and maintain quarantine, and conduct health raids; this particularly in municipalities where such raids by local officials have proved tragic farces and means of disseminating disease. Those taken in our raids are promptly examined; if found infected are sequestered until they are no longer health menaces; nor can habeas corpus release them until such time.

The Roman Catholic Church is now sequestering and treating more than 400 of the public-health menaces in their Houses of the Good Shepherd. Municipalities and hospitals have made provision for upward of 600 patients.

Quarantine for venereal infection has been imposed within the last year in 2,500 cases. The number of foci of infection named by the patients and brought under control was in 1921, for all forms of venereal disease, 1,784; in 1922, 3,729. The visits to the clinics in 1922 number 104,551. There were no accidents in intravenous injections.

Since the work of eradication requires many doctors, and since the policy of the state is to place the responsibility of control upon communities, there have been established in our largest and best conducted clinics schools of instruction, with an enrollment of 189 doctors.

A lessened incidence of the disease is suggested by the fact that in one county, with a population of 400,000, but 11 recent cases of syphilis were found in five months. One hundred and twenty-five of the most active physicians in the county were questioned, as were the clinics and hospitals. Five of these 11 contracted the disease in another state. Neisserian infections in the actively transmissible stage are treated and quarantined when needful. The foci of infection are found and controlled.

As for syphilis, since practically all exhibiting primary or early secondary lesions consult a doctor, and since in from hours to days their infections may be made non-transmissible, a complete control of the disease can be accomplished by the medical profession. Supporting it must be the state, the press, the schools, the churches, business, labor and welfare organizations; correlated, specifically guided, and kept unceasingly active.

As a tribute to my distinguished predecessor in office, Dr. Samuel Dixon, who formulated the Pennsylvania campaign against tuberculosis and put it into practical application, the death-rate from this infection has fallen more markedly than has that of any other of the transmissible diseases. His staff of regulars was supported by the press, schools, doctors and by the antituberculosis society—all driven to action by the women.

Bearing on typhoid fever, the sanitarian, if tempted to look back over a conquered field, must recall the difficult, and as yet unsolved problems of prompt diagnosis and the detection of carriers; both bearing directly upon the question of control. The next step in this direction has apparently been taken by Laird and Conover of the Pennsylvania State Laboratory. They found by placing together in a test tube the serum of the rabbit immunized to the typhoid bacillus and the clear solution or autolysate of the feces or urine from a person suffering with typhoid fever, a distinct, specific precipitation occurs. The immune rabbit's serum throws out of solution, so that they may be observed, the chemicals of which the typhoid bacilli are composed.

The autolysate-precipitin reaction has, so far, permitted the diagnosis of typhoid from the third day of the fever, and has remained positive in the majority of cases up to the fifty-sixth day of the disease. It has shown negative toward the autolysates of the other potentially pathogenic intestinal organisms, and with the feces and urine of all normal individuals. It is positive not only in 100 per cent of typhoid, but reacts to the whole typhoid group, including the Para A and B, and is sensitive to the autolysates of as few as 100 bacilli per cubic centimeter. In comparison to the inadequacy of the older immunologic and bacteriologic methods of diagnosis and control of typhoid cases, the new test marks with its attributes of greater surety and delicacy another long step toward the eradication of typhoid fever.

These preliminary remarks on the most crippling and deadly of the transmissible diseases are meant to indicate that the sanitarian's efforts are of little avail unless he has, not merely the approval, but the active help of the people—all of them or nearly all. They are ready, willing, eager to help, but must be shown why, when, where and how. They must be led, not driven. In their beginnings they must be helped by the trained health man, the public-health nurse, the social worker, equipment, biological products and antiseptics.

The people of a state are organized into large groups—the municipalities, the schools, the churches, business, labor, welfare, charity; ably led, as a rule. The immediate approach to the membership of these organizations is through the leaders. Specifically the next step which should be taken by a health department is the utilization of this great power toward the solution of that problem which most directly bears on individual happiness and

national prosperity, the problem of infant morbidity and mortality, representing a human wastage greater than that from all the transmissible diseases combined. This is a problem which makes its direct and compelling appeal to that new force upon which the sanitarian can most confidently rely—the force of organized womanhood. The first large effective action toward lessening infant mortality and morbidity, and sequential childhood, adolescent and maturity disability is prompt and complete registration; thereafter supervision over the neonatal period, and periodic examination of well babies.

Pennsylvania's infant mortality, meaning deaths under one year, was 87 per 1,000 in 1921; 43 per cent of these died during their first month. The fact that 10 years ago a child at birth had the same chance of living a year as had a man of 75, and that today he has the same chance as has a man of 70, is not a reason for content with progress made.

There have been established in Pennsylvania 460 well-baby centers; usually with the complete approval of the doctors, managed by them, paid for by the community and of growing efficiency and usefulness, these centers have been made possible by the women, and particularly by those of the Red Cross and antituberculosis societies.

Support by the organizations named, but always and particularly by the women, has enabled the Division of Dental Health to secure for 50,000 school children skilled and continued dental supervision, paid for by the communities or local school boards, with a rapidly extending acceptance of this obligation.

The same potential factors have in three years enabled one state sanitarian to insure complete protection against milk borne infections for 800,000 people, this without the support of a state law.

The state, including under this term municipalities, must make adequate appropriations to insure a trained corps of physicians, nurses and social-service workers; must pass enforcing legislation; and, incidentally, should cordially and gratefully accept the help given by the United States both in money, publications and personnel. The schools must establish a graded course in personal hygiene and public health, given the same weight in promotion and graduation as is any other major subject; this in all the schools and colleges. Intensive courses must be given in the normal schools, practical and theoretical, and each and all of these schools must be models in sanitation. Still more intensive courses must be given in the undergraduate medical schools; easily insured by making the subject of public health a major one in state board examinations. The church should have frequent sermons on health, based on material furnished by the health department. This seems fitting since 25 of Christ's 35 miracles bore on health. Particularly must each church insist that its own people be given prenatal care, supervision of maternity, and that the mothers nurse their babies, and take them to health centers where they have no private doctors. It must be the aim of the church to turn all of its children into the schools at the age of six, sound and with all defects corrected. On the cradle rolls of Pennsylvania churches there are 188,000 children.

Business must insist upon physical examination of applicants for employment, and by a simple method of recording list those who are progressively failing and refer them to a doctor before the final, often irreparable breakdown. Big business must combine with labor to insure prenatal, maternity and neonatal supervision.

An administration of public health comparable in efficiency to our knowledge of the subject, is today more attainable than ever before because the voting woman will throw her whole strength in this direction.

IV

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I am assigned this topic for Illinois. The next step in the various states obviously must be determined primarily by: (1) conditions that are often local in character, and (2) by previous steps taken.

Only after an analysis of existing problems and a study of these in the order of their importance can one clearly arrive at the relative importance and significance of the problems confronting him. Two or more of these may appeal to the state health officer as of equal value, but if he will apply to each the acid test of "which offers the greatest opportunity for the reduction of mortality and for the prevention of morbidity," the answer will often show him clearly which is his next step.

In one state with advanced health work, the next step may be a division of industrial hygiene. In another, the next step may be a full-time county health unit in each county. In a third, the next step may be a drive for venereal disease control.

Last fall after much effort, for the first time in the history of the Illinois Health Department, I was able to get a table of infant mortality under one year by counties, for the year 1920. The data was startling to me. This statistical study revealed:

(a) Twenty-three entire counties, comprising considerably over one-half of the state's population (3,638,858 of the 6,616,098), with infant deaths ranging from 231 down to 100.2 per 1,000 live births reported, the average for the twenty-three counties being 120 infant deaths per 1,000 reported live births. (Table I.)

(b) This also revealed five cities, not in this group of counties, with a total population of over 126,000 and an average infant death-rate of 118.3. (Table II.)

TABLE I

Year 1920

Infant deaths of over 100 for each 1,000 live birth reported.

County.	Population.	Rate.
Alexander	24,044	125.6
Carroll	19,412	108.1
Cook	3,086,370	110.4
Edwards	9,431	102.4
Fayette	26,187	110.4
Ford	16,166	108.2
Franklin	58,908	231.
Henderson	9,772	108.6
Jackson	37,191	108.1
Jefferson	28,480	117.
Jo Daviess	21,917	101.3
Marion	37,621	101.6
Monroe	12,837	113.3
Perry	22,943	113.8
Pope	9,625	111.1
Pulaski	14,629	170.8
Saline	38,773	141.3
Scott	9,489	136.4
Wabash	14,034	100.2
Wayne	22,772	111.1
White	20,081	106.8
Whiteside	36,260	111.
Williamson	61,916	107.9
Total—23 counties	3,638,858	2756.4
Average		120.

TABLE II

Year 1920

Five cities with high infant deaths per 1,000 live births reported.

City.	Population.	Rate.
Champaign	16,051	110.
Galesburg	23,924	91.5
Lincoln	11,933	119.2
Rock Island	35,735	128.5
Joliet	38,638	142.6
Total 5 cities	126,281	591.8
Average		118.3

(c) Nine other entire counties with a total population of 669,550 had an average infant death-rate of 93.4. (Table III.)

TABLE III

Infant deaths of 90 to 100 for each 1,000 live births reported.

County.	Population.	Rate.
Boone	15,322	97.2
Calhoun	8,245	95.7
Lake	75,275	91.4
La Salle	93,069	90.5
Madison	107,773	95.6
Morgan	33,567	90.8
Peoria	112,300	90.8
St. Clair	137,376	94.2
Vermilion	86,583	93.2
Total—9 counties	669,510	839.4
Average		93.4

A still further study of the probable contributing factors to this high infant death-rate revealed:

1. *Birth Registration Incomplete.*— Because Illinois is still outside the Birth Registration Area of the United States Census, it is difficult to get an accurate estimate of the number of infants, the location of these and their needs. Believing some of this high rate was apparent rather than real because births were not well reported, an extensive drive for better reporting of births has been made during the past twelve months which covers the following items:

(1) A letter was sent to each physician and registrar in the state explaining the importance of birth registration, and warning both groups that prosecutions would be resorted to if necessary.

(2) The field force was detailed to make personal calls on the majority of the 1,400 registrars and endeavor to get in all unreported births. This reduced the number of delinquent registrars from a monthly average of 340 in 1920 to 283 in 1921, and to a monthly average of 52 during the first quarter of 1922.

(3) A postal card is sent on the first of each month to each registrar reminding him and urging him to get in his birth (and death) reports by 10th of the month.

(4) Several doctors and registrars were prosecuted for failing to report births.

(5) An attempt was made to stimulate better reporting of births by getting:

(a) Newspapers to publish monthly (gratis) the complete list of births reported in their community;

(b) Coöperation of the Illinois Federation of Women's Clubs by appointing a local committee on births in each community, and instructing the committee members what to do;

(c) Similar coöperation through parent-teachers' associations was secured;

(d) A number of local organizations to put on a house-to-house canvass;

(e) Metropolitan and other insurance companies to have their agents and nurses make a report of each birth in families they visited;

(f) Each teacher in the public and parochial schools to send in a list of all new babies which pupils reported in their respective families within a year.

(6) Engraved certificates of births were mailed to parents of all babies whose births were reported, if complete information was given.

(7) A birth certificate was required as prerequisite for entering a baby or child in the many better baby conferences held throughout Illinois.

(8) Churches, schools and other organizations were urged to devote one day of our annual Health Promotion Week to the subject of birth registration.

(9) Extensive and continuous publicity was carried out for birth registration through the public press, the department *Health News,* weekly press service to the newspapers of the state, special articles to newspapers and films, lectures, etc.

(10) Better coöperation from physicians was sought. Over 30 of the county medical societies passed resolutions agreeing to report all births (and communicable diseases).

The result of the campaign was that the births registered in Illinois jumped from 120,360 in 1920 to 131,299 in 1921. This represents an increase in births of more than 9 per cent over that of 1920, being the largest annual increase ever made and corresponds to a birth-rate of 19.8 per 1,000 of population as compared with 18.4 for 1920 and an average rate of under 18 for the preceding five years.

The actual increase in the number of births reported for 1921 is 10,929, or an average of about 10 births per day more than the daily average for 1920.

The reports up to the time of this writing indicate that 1922 will show a decided improvement on 1921 in birth registration. In fact, the United States Census Office is now making an investigation (test) of completeness of birth registration, and we hope to be admitted to the Registration

Area for Births by the end of the year.

II. *Health Center Survey.*—An investigation of the infant welfare activities of Illinois, outside of Cook county, showed 19 of the 101 counties have health or infant welfare centers or stations, there being a total of 43 of these stations in the 17 counties. The annual attendance of new and old cases under one year at all of these 43 stations totaled 1,507. Remember that there are over 70,000 births annually, outside of Cook county, and you can see how few are reached by the existing infant-welfare activities.

III. *Nursing Service.*—A canvass early in 1921 of the nursing situation in Illinois, outside of Cook county, showed a total of 232 nurses in the 101 counties, 71 of whom were employed by the local tuberculosis associations; 30 of whom were paid by the local Red Cross chapters; 46 were doing general nursing service; 68 were devoting their time to school inspection work; 10 were in the industries, and only 17 were known as child-welfare nurses and devoting their entire time to this service. In fact, 23 counties in Illinois have not even one public-health nurse in them.

IV. *Milk Pasteurization Campaign.*—Outside of Chicago the milk supply in many communities was not pasteurized at all, or else inefficiently done, and the bacterial count being high, a high diarrheal and enteritis death-rate is explained in part.

In an endeavor to remedy this, a milk ordinance for municipalities has recently been drafted by the Department of Public Health and then amended by a congress held at the Pageant of Progress. This model ordinance is being brought to the attention of city councils by the Department and by a committee of the congress with which the Department is coöperating.

The Department has inaugurated a milk pasteurization campaign throughout the state. Some half score of municipalities have already adopted the model ordinance prepared and recommended by the Department, but generally speaking the work began so recently that the large results which may reasonably be anticipated have not had time to materialize.

V. *Health Officers.*—An inventory of the safeguards thrown about the babies through an efficient local health organization in Illinois, elicited the information that all but 300 of the 2,700 local health officers were laymen. In addition to this fact, it was found that of the 300 medical men only 6 or 8 were full-time health officers, the others receiving for the most part $100 or $200 annually, and their services were usually on a par with their salary.

In attempting to improve these local health organizations we introduced a bill for a full-time county health officer. This bill was defeated, but as a compromise we obtained 25 instead of 5 district health superintendents. These have already been able to accomplish considerable results in organizing, directing and schooling local health agencies in promoting infant-hygiene services.

You can readily see from the foregoing that with a very high infant mortality-rate, poor birth registration, a restricted health officers' service, inadequate nursing service, and a milk supply which is not made safe by pasteurization, I had no great difficulty in determining that our next step in Illinois should be a campaign for the reduction of infant mortality. Further, feeling my great responsibility in this matter, I could not do otherwise than to advise the Honorable Len Small, Governor of Illinois, to accept the provisions of the Sheppard-Towner Act for Illinois, as offering the speediest financial aid to the solution of the infant-welfare problem. While we may improve the situation by an improved birth registration, better milk supply and better direction of inadequate local infant-welfare agencies, we must have money if worthwhile infant-welfare and nursing service is to be given to the local communities.

To this end we worked out a program under the Sheppard-Towner Bill with

the approval of the Board provided in said act, and had expected to put this into effect July 1 last. We had gotten to the point where a check for over $19,000 was in the hands of the state treasurer, and $52,000 more was due last July, when an opinion of the attorney general of Illinois prevented use of Sheppard-Towner funds until our state legislature can act on the matter next spring. Anyone who is interested in the Illinois program for Sheppard-Towner activities or desires more detail regarding our difficulties under the ruling of the attorney general, can find this information in the Illinois *Health News* for October. In this same edition of *Health News* are given the 1921 figures on Illinois infant mortality by counties, which have just been made available by the Division of Vital Statistics. These 1921 tables indicate a marked improvement over 1920 in infant mortality in Illinois—most of the improvement occurred in Chicago, as 623 fewer deaths under one year occurred among the 42 per cent of our population there, while but 351 fewer infant deaths occurred among the other 58 per cent of our population throughout Illinois.

I am aware that 1921 was a year of unprecedented reductions in infant mortality throughout the United States, as indicated among 70,000,000 in the Registration Area by a drop in infant death-rate during 1921 from an average of 86 in 1920 to 76 in 1921. Chicago's phenomenal drop was from 112 to 89.

While some of the improvement in the infant death-rate in 1921 over 1920 in Illinois is apparent rather than real owing to better birth registration, statistics for Illinois show that there remains still a fertile field in Illinois for infant welfare and other activities under the Sheppard-Towner Act if we can obtain the funds with which to take *our next step* in Illinois for the reduction of infant mortality and morbidity.

Eleven thousand six hundred and eighteen infants under one year in 1920 and 10,644 infants under one year in 1921 is far too great a toll for Illinois to pay, when many of these precious lives might have been saved by the expenditure of even such limited amounts of money as are indicated under the Sheppard-Towner Act.

V

ENNION G. WILLIAMS, M. D.
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Every health worker, from the chief officer to the latest recruit, if he would be successful in his efforts, must realize that general understanding of health principles must be inculcated as a condition precedent to sympathetic coöperation on the part of the public.

As a natural consequence of this realization, health departments have devoted much of their energies to the pursuit of educative programs. Through newspapers, through bulletins or pamphlets, through lectures and motion pictures, and to a limited extent through schools, health instruction has been given; the gospel of prevention has been preached.

The next step in health work is, in my opinion, destined to be the unlimited, rather than the limited use of the schools. Modern educators appreciate the importance of physical soundness as a basis for mental effort. The *mens sana in corpore sano* of the Romans is now recognized as a definite principle for all, rather than a compliment for the fortunate few.

Taking this truth for granted, and it would be a serious indictment of our school authorities if it were not true, our job is to discover the most practicable method of utilizing the almost limitless power of our educational institutions—from the primary grades of the public

schools onward and upward through grammar and high schools to the colleges and universities.

Necessarily, it would be an impossible task for any state health department to attempt the individual instruction of school children; and, even if such a duplication of the teaching staff could be made practicable through adequate financing, it may be questioned whether such a policy would be wise. For the young mind too much stress must not be put on health instruction. We do not wish to create a race of hypochondriacs or symptom hunters; our policy should be rather to make health instruction a part of the regular curriculum, a natural and inseparable part of it.

To do this we must teach teachers. In our primary and grammar schools we have teachers for classes, not for subjects. They are qualified for their work through high or normal school training or work at colleges. No matter what their preliminary preparation may have been, they cannot teach until they have satisfied the licensing authorities that they possess sufficient information to qualify them to give general instruction. We should strive to have health education considered among the essentials of general instruction.

Before we consider the opportunities which the schools can give, permit me briefly to revert to prior efforts. In the past, much of the time and money of health departments were expended in efforts to control the common communicable diseases by securing reports, by isolating and quarantining cases and contacts, and by terminal disinfection. The results were not satisfactory, and we know why. Our limited knowledge of causes of diseases, and our consequent ignorance of their methods of distribution, necessarily made us incapable of adopting proper means for their control.

We were like men thinking to stop a bucket from leaking by plugging up one visible hole while ignoring many smaller holes that we could not see. We confined our attention solely to the clinically sick person, ignoring the unrecognized case or carrier. Our viewpoint has changed. Increased knowledge has made us appreciate that, without relaxing our vigilance over clinical cases, we must endeavor to reach the more prolific sources of danger —the carrier, the unrecognized mild case and the case in the incubation stage. In diphtheria, as we know, carriers and unrecognized cases far outnumber clinical cases; and the same is probably true of scarlet fever. With measles and whooping cough the most dangerous period is during incubation, when germs may be broadcasted by coughing or sneezing, although the disease has not been recognized.

These diseases are transmitted in the secretions from the mouth and nose of the person with the germs. Since it is not known what persons have the germs, it should be assumed that the secretions from the mouth and nose of all persons are potentially dangerous.

As the chances of transmitting the secretions from one mouth to another are reduced, so is the incidence of the disease reduced. The teaching and inculcation of simple personal habits in the school are, I believe, the surest and best methods to combat the spread of that large group of diseases in which the germs of the disease leave the body in the secretions of the mouth.

We are endeavoring to enforce in every school room in our state the following two simple rules:

RULE I

Whenever you cough or sneeze, bow your head or put a handkerchief over your mouth and nose.

RULE II

Don't put in your mouth fingers, pencils or anything else that does not belong there, nor use a common drinking cup.

It may seem to some that these rules affect risks that are too slight to be considered. The risks are small; the chances for a child to contract a disease by violat-

ing one of these rules is slight; but if all the children violate the rules only half as many times as formerly, the incidence of a group of diseases should be cut in half.

Fortunately, we have at hand a demonstration for our use. Some years ago, appalled at the total number of accidents on railways, transportation chiefs inaugurated a "Safety First" campaign. We, today, take as a matter of course the many safety rules that are enforced by the railways, although they were strange when first promulgated. We do not board or leave moving trains; we do not stand on platforms while trains are in motion; we do not put our hands or arms or heads out of car windows. The result of observance of these rules has been that accidents have decreased most satisfactorily. Every person who courted danger did not get hurt even in the older and more careless times, and every one who is careful today does not necessarily escape; but the careful are relatively immune from harm and we may set it down as an axiom that: As the chances of harm are reduced, so the chances of safety will be increased.

This method of reducing the chances of potential dangers is practiced in the prevention of other groups of diseases. We do not attempt to prevent typhoid by measures directed at the clinical patient, but consider that the bowel discharges of all persons, well and sick, are potentially dangerous and must be safely disposed of. In the same way we attempt to get rid of all Anopheles mosquitoes and not simply the ones in the house with the malaria patient.

How better can we combat the large group of diseases carried by secretions of mouth and nose than by directing our attention chiefly to the children of the schools? With compulsory school attendance, which most states have, the great mass of our citizenship is reached in its formative years. Here is the opportunity to implant the fundamental knowledge of the causes of diseases and means of prevention—and the principles of personal hygiene and public health.

We know only too well that public-health activities must wait upon the will of the people as expressed by their representatives in municipal and legislative bodies. Not until the people understand the reason for public-health activities, and have faith in getting full value for the expenditure of funds, will they approve the development of health work. There is no surer way of safeguarding the future of public health than by planting the good seed in the virgin soil of the minds of our future citizens.

We will probably agree that smallpox has been held in check by the large amount of vaccination that has been done in the schools. Here also is where it can best be controlled in the future, and where effort must be directed if the disease is to be eradicated.

The school offers the opportunity of teaching health principles by precept and also by being a model for the community, illustrating good sanitation with a pure water supply, proper heating, ventilation and lighting.

Primarily, the health departments were concerned chiefly with preventing sickness. Of late years, particularly since the impetus given by the results of the draft for the war, the health departments are devoting more and more attention to promoting the physical standard of the people, especially of the children. Obviously, the schools are the places where this can best be done. As a result of school inspection the physical and mental defects are found out.

So our next step, in my judgment, is training teachers to teach health, and the fundamentals are simple. The teacher must be able to impart to the children lessons of prevention and protection for themselves. Generically, these may be placed under the captions of cleanliness and strength-building. It is manifestly unclean to take into our systems the wastes from the intestines of other people

—so we preach sanitation; it is hardly less offensive to think of taking into the nose or throat the discharges of someone else.

Our job is greatly helped if we can make people form health habits; and the teacher at present is our best instrument for that purpose. In proportion to the age of the pupil must be the character of health instruction to be given. It is too much to expect the little child to understand the details of germ transmission; but from the very earliest age certain habits may be inculcated.

Of these, cleanliness is the first—cleanliness of person and habits. The use of individual cups and towels and the frequent use of the toothbrush should be taught. Children of all ages should be told that they must cover every cough or sneeze; or, if a handkerchief is not at hand, that they must bend their heads toward the ground when they cough or sneeze. They must be taught that human wastes that are accessible to flies, to animals or to water sources are elements of danger, that mosquitoes threaten the health as well as the comfort of man. They must be taught to eat properly, the values of different foods and their proper balance. They must be taught to sit and stand properly, to breathe properly, to exercise properly in the open air, to pay attention to regular bowel movements. These are simple lessons; they are simple habits to form, but invaluable to the human family.

When we consider the opportunities that the school offers in the field of preventing sickness and promoting the physical standard of the individual, we must acknowledge that it affords a most strategic position for the health worker; and when the educator or school official fully recognizes his responsibility for the sound body as well as the sound mind, the two will form an invincible force to promote long life, health and happiness.

□

MEASURES FOR THE CONTROL OF THE ACUTE RESPIRATORY DISEASES

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THE SITUATION

In Chicago, the general death-rate has fallen from a maximum of 73.8 in 1849, through a rate of 27.64 in 1872, and 12.59 in 1920, to 11.1 in 1921. Analysis of the seasonal distribution of deaths shows that the improvements has been in the summer-autumn general death-rate exclusively. This rate has fallen from a maximum of 42 in 1872 to 10.1 in 1920, and from an average of 29.8 in 1871-80 to 12.66 in 1911-20. There has been practically no improvement in the winter-spring general death-rate—the decade 1871-80 having had an average of 17.32, and that of 1911-20 one of 16.17.

A further analysis shows that there has been a great improvement in the death-rate from such typical summer diseases as typhoid, diarrheas in children under 2, and in the death-rate of babies under 1 from all causes—a group in which there have been and are other factors, but none more important fifty years ago than sanitary conditions prevailing in summer.

On the other hand, a study of pneumonia, bronchitis and influenza grouped together shows that these diseases are responsible for a higher death-rate than they were fifty years ago. During a fifty-year period in which practically all other

forms of bacterially caused diseases were wholly, or in great measure, being brought under control, the acute infections of the upper respiratory tract became worse. At any rate, they caused an increasing death-rate. No information is available as to the prevalence rate, aside from the death-rates, of these diseases and their non-fatal allies—coryza, tonsillitis and pharyngitis—during any one of the five decades of this half century period.

While the charts shown are based on Chicago conditions, I think we can assume that the conditions shown by them (charts displayed during the reading of this paper are not reproduced here) are, in a general way, the same throughout the United States.

Flexner[1] says: "In man, the prevalent type of epidemic disease has altered notably within a century. There have been far less of the diseases in which the portal of infection is enteric, and more of the diseases in which the portal of infection is by way of the respiratory tract."

Park[2] says: "Pneumonia is not decreasing in this country."

I submit the following conclusions as to the situation:

1. Pneumonia, bronchitis, tonsillitis and coryza and what is sometimes called endemic influenza, are the most prevalent and the most deadly forms of epidemic and endemic diseases now prevalent in the United States.

2. They are chargeable with an increased death-rate as compared with fifty years ago.

3. Our health departments are without adequate policies or equipment for their control.

MEASURES FOR THE CONTROL OF THE ACUTE RESPIRATORY DISEASES AND PARTICULARLY FOR THE CONTROL OF PNEUMONIA.

A plan against these diseases must embrace two methods of attack—these to be simultaneously carried out. The first dealers with environmental factors contributing indirectly toward acute respiratory infections; the second, with measures aimed more directly at the diseases.

INDIRECT MEASURES

This group of measures relates in about the same measure to coryza, tonsillitis, pharynigitis, what is called endemic influenza, bronchitis and all acute pneumonia except the terminal and secondary pneumonias.

1. In every city government there should be a bureau or commission dealing with city planning. Where there are such bureaus, they are commonly known by some name which includes the word "zoning." On such commissions, the health department must be represented strongly.

There is more proof of the ability of bacteria which cause infections of the upper respiratory tract to survive drying than is the case with other ordinary forms of infection (Stillman[25]). Sunlight must strike the pavements, if the dust is to be sterilized. Tall buildings, by throwing the street surface into shadow, interfere with the sterilization of dust by sunlight. They bring about an increased crowding of street cars. City planners and city zoning commissions will never see the relation of density of occupation of the land to health, and especially to winter diseases, unless the relation is persistently insisted on by health authorities.

2. Every city government should have a bureau dealing with smoke, dust and other forms of air pollution. These bear relation to health, and especially to the diseases which are peculiarly prevalent in the short days of winter and early spring—the days with few hours of sunlight. This bureau should either be in the health department or in close touch with it.

3. Every health department should have a ventilation bureau as a part of its organization. The city laws and ordinances should embrace laws on ventilation. This bureau should examine building plans; examine and advise as to installations for ventilating and heating;

watch over the operation of such installation; inspect premises, including street cars, and generally enforce the ventilation ordinances.

4. Somewhere in every city government, and preferably in the health department, there should be an agency to promote winter sports such as snowshoeing, skiing, skating, etc.

5. I merely wish to bring before you the advantage, from the health standpoint as well as from the economic standpoint, of a school year beginning on or about March 1st, and ending with the beginning of the Christmas holidays. If the health commissioner is ex-officio a member of the school board, as he should always be, he is in a position to insistently present this plan for a change in the school year.

DIRECT MEASURES

Coryzas

Coryza is the most frequent cause of illness and one of the most frequent causes of sickness absenteeism in people of all ages and all occupations. Many forms of contagion begin with a coryza, and are most infective during the period when coryza is the only symptom. There is at least an even chance that coryza is epidemiologically related to pneumonia, just as diarrhea is to typhoid.

Nevertheless, we are not ready for more than a rudimentary policy of control of coryza. We do not know the flora of the upper respiratory tract, either in health or in coryza. The very nature of coryza is in doubt. Vaughan[3] holds that it is a protein sensitization; some hold that it is from without; others that it is an auto-infection, and still others that it is a specific infection, while the public generally regards it as non-infectious. The public esteems it as a matter of minor consequence, does not consult physicians for it, and would not report it.

For these reasons, all that I can recommend as a coryza control policy is:

1. Education
2. Laboratory Research
3. Observations of coryza subjects among school children
4. Epidemiologic studies

Tonsillitis and Pharyngitis

This group of infections is responsible for a very high sickness rate; in fact, is the cause at times of the principal sickness absentee rate. Baker[6] so found it in the New York City schools in early winter.

The outstanding symptoms of the group are found in diphtheria, scarlet fever and other forms of contagion not called tonsillitis. There is a chance that sore throat is epidemiologically related to pneumonia. It is possible that the habitat of the organism in the earlier stage of pneumonia infectivity, is the tonsil. Nevertheless, we are not ready for more than a rudimentary health department policy with regard to sore throats. We do not know the flora of this region, not even of the tonsils, in spite of the extensive literature on that subject. No one has explained why coryza which travels along the mucous membrane from the nose to the bronchi, usually does not cause tonsillitis.

The only terms of policy I offer are:

1. Education
2. Laboratory research
3. Diagnosis as between sore throats, tonsillitis and other infections
4. Epidemiological studies

Simple Bronchitis

The policy for this disease is the same as in the case of coryza.

Endemic Influenza

In view of the great uncertainty as to the existence of the disease in this country, as to diagnosis in given cases, and as to its relationship to pneumonia, bronchitis and coryza, the following policy is recommended:

1. Reporting
2. Bacterial diagnosis
3. Research work
4. Epidemiological studies

Epidemic Influenza

The control of this disease is a problem in itself, differing in many features from that presented by pneumonia. The valuable reports on the epidemic of 1918 will doubtless point the way for proper procedures of control, which should be determined upon in advance of the next pandemic wave.

Incidentally, I have found that confusion as between influenzal pneumonia and ordinary pneumonia has made the historical study of epidemiology of pneumonia difficult. It has increased the difficulties in studying the epidemiology of the pneumonias prevalent since 1918. The closely analytical studies of the influenza outbreak such as those of Opie[7b] and Vaughan[8], do much to clarify the question.

Acute Pneumonia Except Terminal and So-called Acute Severe Bronchitis

A program for the control of pneumonia should include the following procedures, aimed directly at the disease:

1. Reporting—In some cities, reporting is now fairly well done. In Chicago in 1921, the cases of pneumonia reported numbered 8,336; the deaths numbered 2,152. This would indicate reporting that is at least 75 per cent complete. In all probability, the reporting of measles, scarlet fever, whooping cough and diphtheria is no more so.

In Cole's "Program for the Control of Pneumonia"[9] reporting is set down as the first step. I agree with this opinion. Those places not now requiring the reporting of pneumonia should adopt the procedure. Those requiring it should bring their reporting up to 100. Reporting pneumonias and bronchitis should be on a basis of the bacterial cause. I can see no epidemiologic reason for trying to maintain the anatomic basis for classifying pneumonias. The reporting of static pneumonias, and pneumonias terminating other forms of organic disease, need not be done.

2. Diagnostic Laboratories—Some health department laboratories now make bacteriologic diagnoses of pneumonia sputum. These diagnoses relate to the kind of bacteria predominating and, in the case of pneumococcus, to the type. Methods of typing that are feasible and practicable are now in use. They are less available for specimens shipped some distance, as is often necessary in the case of state laboratories, than they are where the specimen can be delivered at the laboratory soon after its collection. The standard method is that of Avery. The method of Krumwiede has some advantages and some disadvantages. The number of improvements in diagnostic technique, noted in the journals from month to month, is evidence of the dissatisfaction with present methods and promise of improved and more practicable procedures at an early date.

The work of the diagnostic laboratory should cover the sputum of the attendants of the patient. Opie[7b] says: "The essential factor in the management of influenza and pneumonia is such isolation of each patient that microörganisms cannot be transmitted from one to another or from attendants or others to patients.

At or after the conclusion of the case stage, the diagnostic laboratory should be used to detect carriers among the contacts as well as convalescent carriers.

3. The Use of Curative Biologic Products.—The development of these products has proceeded to the point that health departments can get behind them to a limited extent; can furnish them for use in their own hospitals, and can supply them on somewhat the same basis that diphtheria antitoxin is now supplied. The indications are that the future will see an increased curative efficiency of, and an increased use of these products.

Some health departments make their own pneumonia antigen and pneumonia sera. Whether a laboratory shall manufacture or buy and check the purchased product, is to be settled by each department on the basis of economics and its

equipment, with men trained in this line, and equipment in other directions.

Cecil[10] says: "We have a specific treatment for pneumococcus, type I pneumonia, and there are good reasons for believing that an efficient specific therapy will soon be worked out for other types." This is a conservative statement of the general trend of opinion, as found in the more scientific literature.

4. Vaccination Against Pneumonia.—To my mind, the efficacy of vaccination against pneumonias has been established by the work of Wright[11], Lyster[12], Cecil and Austin[13], Cecil and Vaughan[14].

Blake and Cecil[15] say: "The indications are that prophylactic vaccination against certain types of pneumococcus, may lead to a reduction in the incidence of those types." Further on in their study, they conclude that immunity produced against one type begets some degree of immunity against other types.

Duckwell[16] says: "The obvious conclusion is that the vaccine protects against pneumonia and the common respiratory diseases in the proportion of five to one."

Wadsworth[17] says: "Man has a considerable resistance by reason of repeated exposure to pneumococcus infection."

Vaughan[3] says: "The southern soldiers came from communities in which the pneumonias are rare, and consequently had had only slight opportunity to acquire immunity; while the northern soldiers came from communities in which pneumonias are more common, and consequently had had greater immunity." In discussing vaccines, he says: "Certainly the results thus far obtained are promising and justify further research."

Simon[18], speaking of vaccination, says: "Findings at Upton and in South Africa clearly indicate that at least a very definite advance has been made toward the conquest of this scourge."

The duration of the immunity has not been established, though the view that it will persist throughout the winter-spring season has been strongly presented. We have enough information in hand to warrant us in either requiring, or strongly advocating but without requiring, vaccination of people in barracks, and children and old people in institutions for these groups, and in promoting, less vigorously, vaccination of other groups or even of the general public.

Laboratories should be equipped to furnish these vaccines where they cannot be otherwise conveniently, safely and more economically supplied.

However, McCoy[19], Wadsworth and others, report that, in their experience, vaccination has not proved effective.

Clark and Murphy[20] say that from 26.8 to 50 per cent of people have a second attack of penumonia, and that there are no specific antibodies produced in pneumonia. They proved that the lungs could produce antibodies, and assumed that the absence of antibodies in pneumonia was due to some peculiarity of the infecting organism, and not of the lungs.

5. Convalescent Carriers and Infected Contacts.—There should be an effort to control convalescent carriers and infected contacts.

6. Research Work.—The need of research work on acute respiratory infections need not be emphasized. Suggested fields of inquiry are as follows:

1. The flora of the nose and sinuses, the tonsils, pharynx and mouth. [7] [21] [22]

2. The flora of the trachea, bronchial tubes and lungs.

3. The host reservoirs for the organisms which cause pneumonia.

4. How are the bacteria of pneumonia activated?

5. Various phases of the carrier question.

6. How is infection spread?

7. When is it safe to terminate a case of pneumonia?

8. Vaccines.

9. Curative biologic products.

10. Simpler diagnostic procedures.

11. Relation of housing to pneumonia.[21]

12. Which cases of pneumonia should be hospitalized?

13. Can pneumonia be safely treated in hospital wards?[7]

14. Overcrowding in homes.

15. Overcrowding of cases in hospital wards.

16. Relation of weather and proportion of carriers to total population—to pneumonia.

17. Relation of these factors to spacing of occupants of homes and of beds in barracks and hospitals.

7. Appointment of an Epidemiologist. —Until such time as more detailed procedures for the control of pneumonia can be worked out, standardized and applied, and until pneumonia has ceased to effect so large a death-rate, the work of pneumonia control in a well organized health department should be under the direction of a trained epidemiologist.

The epidemiology of pneumonia is a new subject, at least, epidemiology based on routine laboratory procedures, is new. Considerable uncertainty prevails, both by reason of the newness of the subject and by reason of the variability in the infecting cause at different times and in different epidemics.

Vaughan[3] properly says that pneumonia is not an entity in the sense that diphtheria is, the latter being due to but the one infecting organism, whereas pneumonia is a reaction to any one of several organisms. Cecil[10] is right in asking that we specify the kind of pneumonia by its bacterial cause.

In reading the history of pneumonia as given by Hirsch[23], Webster[24] and Vaughan[3], one notes great uncertainty and uneveness in reports on infectivity of pneumonia due to confounding influenza and pneumonia.

As well as I can, I estimate the epidemiology of pneumonia is as follows:

1. Pneumonia is ordinarily an endemic disease, but it occasionally takes on epidemic peculiarities and qualities, and prevails in epidemic proportion.

2. While prevalent at all seasons, its prevalence is subject to marked seasonal variation. Any program for its control must be based in part on the factors responsible for the seasonal variation.

3. While it prevails at all age periods, the age variations in prevalence are so great that measures of control must take this into consideration.

4. In ordinary times pneumonia, in the great majority of instances, is due to infection with pneumococcus.

5. Of the pneumonias due to pneumococcus, about 80 per cent are due to types I, II, III, and 20 per cent to type IV. [25] [10] These percentages were markedly disturbed during the recent waves of influenza, type IV becoming unduly prominent, but the ordinary rule is four to one as stated.

6. The distribution of cases, as between infection with pneumococcus, streptococcus, influenza bacillus and Friedlaender's bacillus, is not settled. During the epidemic of measles in the United States Army, infections with streptococci, influenza bacillus became very frequent and prominent. As before stated, the influenza waves disturbed the distribution of cases between the bacterial causes, increasing the proportions due to streptococci and influenza bacilli.

7. Bacterial diagnosis is important from the standpoint of prevention, epidemiology, treatment and prognosis.

8. While it has been established that infection from cases can, and does occasionally occur, pneumonia contracted from cases in ordinary endemics is rare. Simon[18] says: "In view of the rarity with which pneumonia was known to develop through contacts," etc.

9. The great majority of infections are due to convalescent carriers. Southworth[33] says: "We may grant that comparatively few adults in good health can be shown to have contracted pneumonia while in close contact with the disease, but the case is different with children." Vaughan[3] says: "With proper precau-

tions, we do not believe that strict isolation is necessary in the care of pneumonia patients." Cole[9] says: "Virulent pneumococci are harbored by those convalescent from pneumonia, as well as those who become carriers by contact."

10. Convalescent carriers and contact carriers remain such for about four weeks, when no treatment is given. (Stillman[25] says 25 to 80 days.)

11. Whenever and wherever pneumonia is prevailing and pneumococcus types I, II and III carries abound, overcrowding must be prevented and high ventilation standards must be maintained.

12. Type IV pneumococci, the variety found in the mouth ordinarily, are rarely infective, and when they cause pneumonia, the disease has a low case fatality rate.

13. Pneumococci are transferred by mists, sprays and by dust.[25]

14. Pneumococci can be spread by eating utensils.[36]

15. The human host is the only known reservoir for pneumococci types I, II and III.

16. Pneumonia, epidemiologically, is more nearly akin to epidemic cerebrospinal meningitis than it is to any other disease.

17. Little or nothing is gained from the epidemiologic standpoint in hospitalizing pneumonia.

18. Quarantine, such as is employed in a disease like smallpox, measles and scarlet fever, gains nothing.

19. Attention centers on the prevention of the development of convalescent and contact carriers.

20. The wearing of masks, protection of head zones, spacing of beds, ventilation of the sickroom, intermediate disinfection and bacteriologic examination of convalescents and contacts, and other measures to prevent infection of contacts are insisted on.

21. All other measures are of minor importance.

This is as far as I can go in the suggestion of a program. To get the matter more specifically before this Section, I give you a brief outline of the methods now employed in Chicago, and follow that with some comments and suggestions thereon:

Pneumonia is reported. Upon receipt of the report, an inspector visits the home and placards front and rear. The children are not allowed in the sickroom. They are permitted to go to school. Employed persons are permitted to sleep at home, out of contact with the sick person, and go to work without hindrance. Intermediate disinfection is advised and, after a fashion, required. Quarantine is terminated upon physician's notification. No throats are examined. No terminal disinfection is done by the department. Pneumonia in hospitals is cared for in pneumonia wards and in private rooms. Bacterial diagnosis is offered and is occasionally done. Antigen for curative purposes is manufactured by the department and supplied upon request. This is about the program of the more up-to-date departments in the country.

I suggest the following modifications of the plan now used in Chicago: That an epidemiologist be put in charge of pneumonia control, who will adopt a policy as outlined above. This policy should center around the convalescent and contact carriers as the source of trouble. The policy should be essentially that of the standard policy for the control of cerebrospinal meningitis.

The papers on this program relate largely to the epidemiology of pneumonia. I hope the discussion will cover not only these phases of control, but vital statistics questions, laboratory procedures and hospital relations as well.

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PLANS TO REDUCE THE HIGH MORTALITY FROM THE ACUTE RESPIRATORY DISEASES IN WINTER

HENRY F. VAUGHAN, D. P. H. AND GEORGE T. PALMER, D. P. H.
Detroit Department of Health

Read before the Public Health Administration Section of the American Public Health Association at the Fifty-first Annual Meeting, Cleveland, October 17, 1922.

THE cause of public health has advanced measurably in the last century, particularly in the last quarter of this period. The death-rate today is just half what it was when Millard Fillmore was president. Those ghastly epidemic peaks in the mortality curve rising to 40, 50 and even higher, mute evidence of the ravages of cholera, smallpox, typhoid and yellow fever, have disappeared from the graph of our country's mortality history. But for influenza in 1918, we should have a gently undulating curve declining from 1880 to date.

The reduction in the mortality rates has been due to declines in specific causes and has not been general. Tuberculosis has lessened as have diphtheria, scarlet fever, typhoid, malaria, smallpox and the deaths among infants. Certain diseases of advanced life have increased.

We are particularly concerned in this paper with the behavior of pneumonia. In the twenty-five years from 1864 to 1888 the combined rates for the cities of New York, Philadelphia, Boston and New Orleans show a pneumonia mortality of 189. In the next twenty-five year period this rate was 232. In the former period pneumonia represented 7 per cent of the total deaths. In the second period the pneumonia ratio was 12 per cent.

Turning to the expanding registration area we observe a decline in the pneumonia death-rate from 181 in 1900 to the lowest point of 124 in 1919. (See Chart 1.) While this is encouraging we must recognize that pneumonia is still one of the largest items in the mortality table. It causes about 10 per cent of all deaths in the Registration Area advancing from 9.0 per cent of the total deaths in 1900 to 10.5 per cent in 1920.

EXPANDING U. S. REGISTRATION AREA

Year	Per Cent of Total Deaths Caused by Pneumonia
1900	9.0
1905	9.3
1910	9.9
1915	9.8
1920	10.5

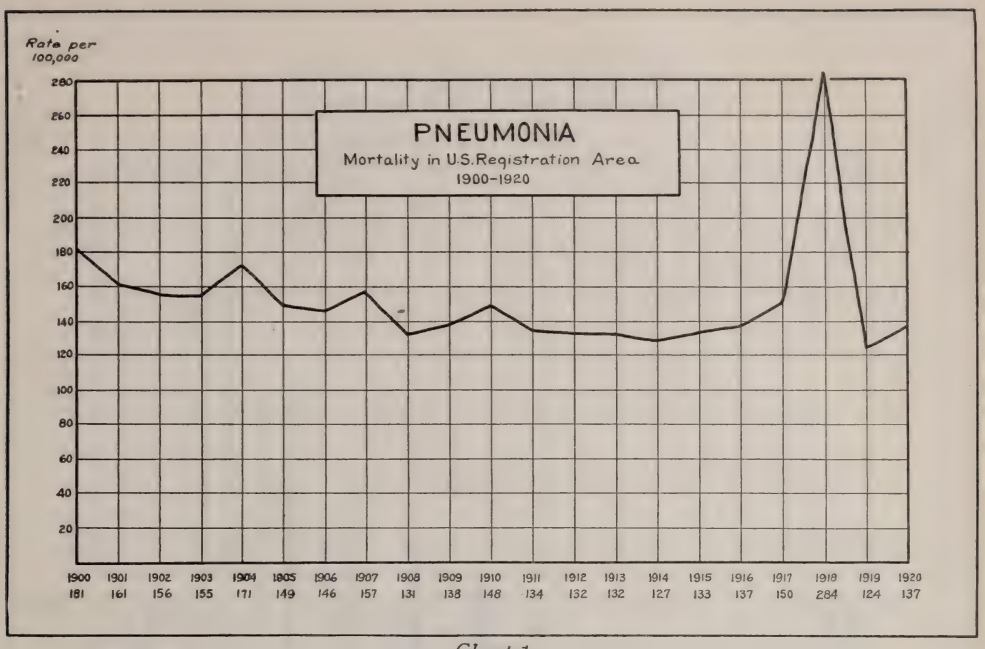


Chart 1

There are of course not included in the above figures the numerous deaths where pneumonia is listed as a contributory rather than as a primary cause.

In New York State, which represents more uniform conditions than the Registration Area as a whole, during this twenty year period we observe that pneumonia represents more than 11 per cent of the total mortality.

The city suffers from pneumonia more than the country districts. In the last twenty years it has been fully a third greater in the urban communities. There are vast differences in the rates of the large cities.

Pittsburgh has usually headed the list with the highest rate, the average for the years 1911-1917 inclusive being 275. Next comes Baltimore with 210, Boston 203, New York 191, and the lowest rate among the ten largest cities is for Cleveland, the figure being 140, about half that of Pittsburgh. In 1915, 16 per cent of all deaths in Pittsburgh were attributed to pneumonia. Contrast this with San Francisco where pneumonia represented but 8 per cent of the total deaths.

Of course the pneumonia death-rate is influenced by the age distribution of the population, race, color and sex. Pneumonia is a disease of the extremes of life. Take the figures for New York State in 1910 as an example: the rate for children under 5 years was 789, for people from 5 to 60, 74, and for people over 60, 678. Thus the rate from 5 to 60 years is about one-tenth of what it is at the extremes of life. The actual numbers of pneumonia deaths in these age groups are: under 5 years 7098, 5-60, 5561, over 60, 4442.

Pneumonia is greater among the colored race than among the white. In the industrial mortality experience of the Metropolitan Life Insurance Company for the years 1911 to 1916 the colored rate for pneumonia (lobar and pneumonia undefined, exclusive of children under one year) is about 120, compared to a rate of 73 for whites. The colored rate is likewise higher for broncho pneumonia.

Pneumonia kills more men than women. This is more pronounced for lobar pneumonia than for broncho pneu-

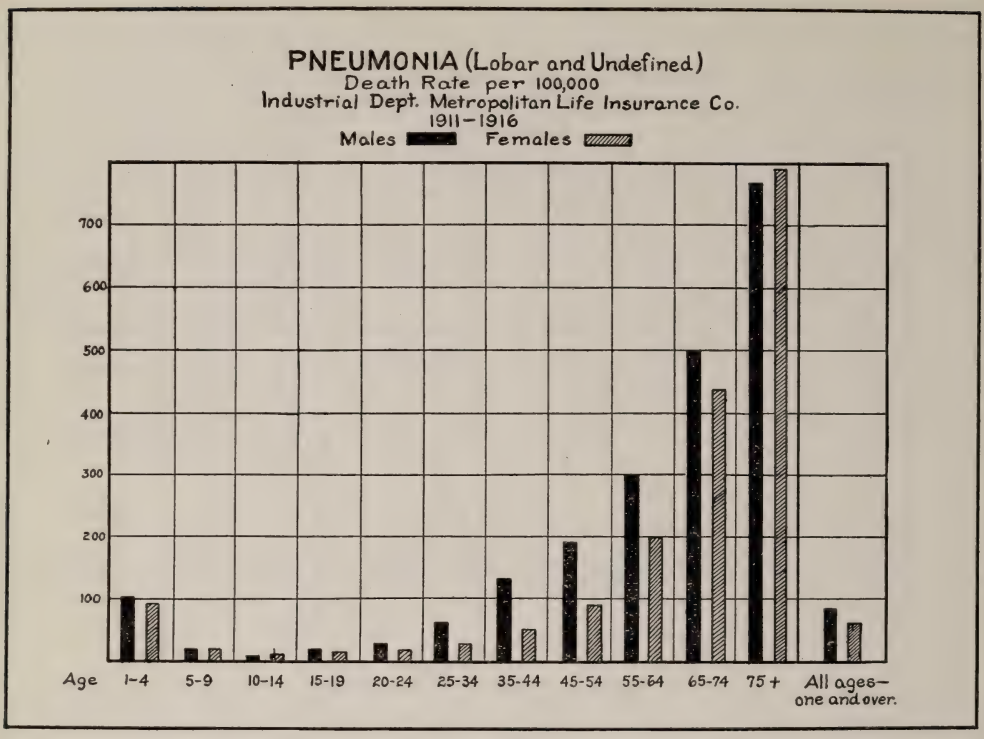


Chart 2

monia. The Metropolitan Life Insurance experience from 1911 to 1916 for lobar pneumonia and pneumonia undefined is represented by a rate of 83 for white males and 63 for white females. The corresponding rates for broncho pneumonia are approximately 30 and 29. As will be noted on Chart 2, this excess for males in lobar pneumonia holds true for all age groups except 10 to 14, and 75 and over. At the age group 35 to 44 the male rate is 2.6 times the female rate. It is evident that the male in the prime of life is noticeably more susceptible to pneumonia than the female at this age. This suggests that employment or occupation exercises an influence. This is further borne out by the excess of male deaths among the industrial policy holders of the insurance company as compared with the general population. It appears that the industrial policy holder, employed for the most part in manual labor, is a more healthy specimen and less prone to pneumonia up to the time he is 25 years of age. From then on till old age, his work becomes more hazardous so far as lobar pneumonia is concerned. At age 25 to 34 the industrial policy holder has a rate 1.6 times that of the male population at large which covers all occupations.

In general the worker whose occupation keeps him out of doors is less subject to pneumonia than the person subjected to extremes of heat, or the clerk and office worker who lead an inactive physical life in a slightly overheated atmosphere.

We must recognize that pneumonia is normally a creature of the season but that at times its infectiousness ignores the weather completely and carries on its destruction even in midsummer if the human soil is fertile, as there is ample testimony in our recent army experience.

Pneumonia has been classified clinically and bacteriologically. We take the lib-

erty of proposing a classification on an epidemiological basis. First, there is epidemic pneumonia, the infectious type which apparently ignores the weather; second, there is sequel or secondary pneumonia which follows an infectious disease or accidental injury, and third, endemic or seasonal pneumonia, the type that is with us every winter.

By epidemic pneumonia we mean that form in which the disease takes on the characteristics of a sudden flare up, and in which the cause is to be found in some infection to which all have been directly or indirectly exposed. Primary pneumonia may be just as truly epidemic in character as scarlet fever, measles or diphtheria. In August, 1918, there were admitted to Camp Wheeler, at Macon, Georgia, 4,134 colored recruits from the state of Georgia. These men were immediately placed in a newly organized receiving camp, and were housed in the standard army pyramidal tent. Due to a shortage of equipment, overcrowding existed, it being necessary to house as many as ten or twelve men in some of the tents. Other equipment such as blankets and clothing was inadequate, and the companies suffered much from lack of discipline on the part of the officers. This occurred during the first part of August which, so far as weather conditions are concerned, was a typical August for Georgia. The mean temperature for this month was 79.7° as compared with 80° for this month since 1871. The weather was somewhat drier than usual. The nights were cool, but not unusually so. Within a few days there developed among these recruits 189 cases of primary pneumonia. Practically all of these cases were typed in the base hospital laboratory, with the result that approximately two-thirds of the men were found to be suffering from the Type I pneumococcus. A careful history of each case was secured by one of us and we were much impressed by the fact that contact between individuals had been the prime factor in spreading the infection. There would be three or four cases of Type I pneumonia taken from the same tent. Then a friend in another tent some distance away would be affected; again it was a relative. It was notable that a more or less intimate relationship existed between cases that were quartered some distance apart. Obviously, the preventive measures to be invoked to decrease the spread of an outbreak of this description are those which are ordinarily employed to stop contact infection, and include the elimination of over-crowding and the application of the principles of personal hygiene. There is some evidence, as shown by the work of Cecil and others, that prophylactic inoculation against fixed types of pneumococcus pneumonia has been productive of promising results.

By sequel or secondary pneumonia we refer to the type which follows a previous infection, accident or operation. It was clearly shown during the late war that the danger to measles patients lay not in the primary disease, but in the possibility of picking up a secondary infection while in the hospital ward. When admitted to the hospital only a small per cent of the measles cases were found to carry the streptococcus or pneumococcus. Within a few days it would be found that 50 to 60 per cent of the patients in a given ward were harboring one of these organisms. Such deaths as occured were not from measles, but resulted from sequel pneumonia.

We have a good illustration of this in the early war experiences of Camps Wheeler and Upton. Wheeler's personnel was made of National Guardsmen from the south who had had but little measles. When brought together it needed but a case or two of measles to light the fire and an epidemic burst forth, followed shortly by much pneumonia. Camp Upton consisted of National Army men from New York City. By reason of their urban existence they had had measles in childhood. There was thus no

inflammable timber for the measles spark. Little measles occurred, and in consequence but little pneumonia developed. The raw recruits, fresh from civilian life in the cold and inclement north, did not have pneumonia. The susceptible men in the milder south suffered severely from pneumonia which was induced by measles.

We would include in this class, pneumonia following influenza or any other epidemic disease. A favorable prognosis depends almost entirely upon the success with which the attendant meets in keeping his patient free from those organisms which produce a secondary infection with a high mortality rate. To our mind the most important preventive measure is to segregate the patient in his bed as soon as possible after he has shown symptoms of the primary disease. Certainly those who accepted the sane advice of the physician, remained at home and went to bed soon after manifesting symptoms of influenza, had a far greater opportunity to recover than did those who insisted upon remaining at work, coming in contact with carriers of every type of pneumonia producing organism. In military life strict discipline within and without the hospital will do much to minimize sequel pneumonia. In civil life we must again resort to education, and especially must we secure the hearty coöperation of the leaders of industry and others who employ a large number of individuals and whose influence if properly directed may result in the early segregation of those who suffer from colds, influenza and other forerunners of a pneumonic condition. The evidence thus far accumulated with respect to the value of pneumonia vaccination as a preventive of sequel pneumonia is not very encouraging.

Endemic or seasonal pneumonia includes the type of disease with which we are most familiar in civil life—sickness which is largely influenced by the personal resistance of the individual, his personal habits, his diet, his mode of dress, his tendencies to unduly expose himself to severe climatic changes. Every year we witness the increase of pneumonia in the autumn, the peak stage reached in midwinter followed by a decline in spring and a low point in summer.

For the expanding Registration Area from 1911 to 1917, 43 per cent of the annual pneumonia mortality occurs in the first three months of the year, 24 per cent in the second quarter, 10 per cent in the third quarter and 23 per cent in the last quarter. With but slight modification, this ratio is maintained year after year. This seasonal fluctuation holds goods for Los Angeles as well as Minneapolis and Detroit. (Chart 3.)

There are examples of seasonal pneumonia in the army. Recruits drilling in inclement weather, practicing on the rifle range, frequently lying for hours in the damp grass or on the muddy ground, forced marching, becoming overheated and afterward chilled when stopping to rest, are but examples of pre-disposing causes. The epidemiologist at Camp Upton found that the hospital admissions for pneumonia from among drilling recruits increased markedly during those days of the year on which there was experienced alternate freezing and thawing. These were the days on which the troops would start out early in the morning dressed for cold weather, the ground being frozen, and before they had been out on the drill grounds for many minutes the sun would soften the soil, rendering the field muddy, and overheating the troops. This undue exposure was too severe for the unseasoned man and resulted in colds, sore throat, coryzas and in many instances pneumonia, the bacteriologic type depending entirely upon the strain which might be presented in the individual's buccal cavity at that time. As long as continued cold weather existed without any rise in temperature above the freezing point, there was no pneumonia. The disease manifested itself

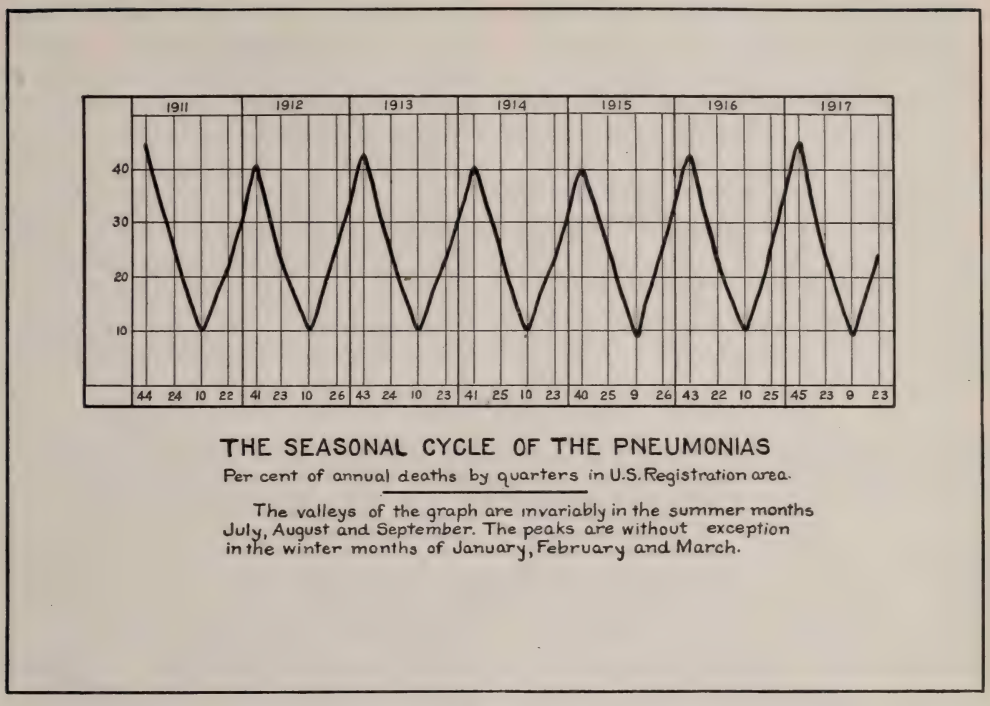


Chart 3

only during those periods in which a marked diurnal change of temperature occurred.

Preventive measures in military life must depend largely upon the common-sense care of the soldier on the part of his superior officer. Our major concern is with the seasonal pneumonia of civil life. Its prevention is a perplexing problem for the health officer, and with our present knowledge we are forced to confine ourselves to educational propaganda along the lines of personal hygiene. The anti-coughing, sneezing and spitting campaigns have been of value. Published articles on ventilation, care of the home, the prevention of overcrowding, the proper clothing to wear, exercise, etc., are also of value.

Results can be achieved by educational means. The New York State figures show that the pneumonia death-rate for children under 5 years has fallen from 853 in 1900 to 508 in 1920. The age group over sixty shows no reduction between 1900 and 1915, but a drop in 1920. The middle-age group has made no material progress. For every 100 deaths in 1900 there were 92 in 1915 and 112 in 1920.

PNEUMONIA MORTALITY IN NEW YORK STATE
ANNUAL RATE PER 100,000

Age	1900	1905	1910	1915	1920
Under 5.....	853.	728.	789.	666.	508.
5 to 60.....	81.	67.	74.	74.	90.
60 and over..	625.	593.	678.	632.	482.

In Detroit all causes of infant mortality have declined in the last 20 years, pneumonia included. For every 100 deaths from pneumonia in 1906-07-08 there were 74 in 1913-14-15, and 61 in 1919-20-21.

In conclusion, we believe that there is no panacea for endemic pneumonia immediately in sight other than hard work —laboratory research, field research, statistical research. We must gather still more information about the cause of pneumonia. Is the mass of endemic pneumonia self-induced by transgressions of personal hygiene? Must we pay more

respect to the common cold? Weather is responsible for pneumonia, but what elements of the weather—temperature, humidity or sudden change? We must know vastly more about the correlation of weather elements with pneumonia.

There is already under way a movement to establish an endowed atmospheric research institute. This is endorsed by the American Meteorological Society and the National Research Council. We propose the active support of this movement by the American Public Health Association, appreciating that it will lead us not only to a clearer comprehension of pneumonia, but also of those other acute infections concomitant with cold weather—scarlet fever which blossoms in the north and is practically unknown nearer the equator, diphtheria which shows similar but less marked tendencies, and measles which though apparently following people to all parts of the globe, prefers cold rather than warmth for its activities.

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1922 PROGRESS REPORT OF THE COMMITTEE ON EDUCATIONAL AND PROFESSIONAL STANDARDS FOR VITAL STATISTICIANS

Read before the Vital Statistics Section of the American Public Health Association at the Fifty-first Annual Meeting, Cleveland, October 19, 1922.

Your Committee was appointed to coöperate with the Committee appointed by the American Statistical Association to consider educational and professional standards for statisticians. We have kept in contact with the American Statistical Association Committee, which is composed of the following persons within the membership of that organization:

American Statistical Association Committee on Educational and Professional Standards for Statisticians:

Representing the Board of Directors:
Malcolm C. Rorty, (Chairman)
Louis I. Dublin.

Representing the Membership:
S. L. Andrew,
Donald R. Belcher,
Edwin W. Kopf.

Work of the American Statistical Association Committee:

This Committee examined a number of proposals made to it by academic and practicing statisticians. One of these proposals was a list of recommended subjects of study designed to impart knowledge of certain basic natural and physical sciences, elementary and advanced mathematics, logic, statistical office and field practice, and statistical analysis. Another proposition was a plan for certifying the competence of two groups of membership in the Statistical Association: (a) Associates, or juniors and (b) Fellows, or seniors.

These ideas were deemed to be impracticable at the present time, because of the lack of suitable, uniform texts for instruction. The Committee thought it would be most helpful to all interests concerned if the Statistical Association were to direct the preparation of a reference work on statistical methods which are common to all fields of statistical work. The several subjects are to be worked up by specialists competent in each field, examples of essential principles to be drawn from as many fields as possible. It was thought that such a work would serve as a basis for instruction in fundamental subjects with which all statisticians need to be acquainted. Questions of certification of proficiency can be left until the reference work has been in use for a sufficient time to warrant further action.

Work of the American Public Health Association Committee:

Your Committee has been in correspondence with many statisticians here

and abroad, and wishes to report practically undivided support for the proposal for setting definite standards of education in statistical fundamentals. The need for advancing vital statistics is evident. More and more, the vital statistician is being called to the council tables of public health. He is being invited to test the results of intensive public-health effort. His advice is sought when programs are proposed which involve the effective expenditure of millions of dollars. His is the task of presenting reasoned judgments on the concrete results of public-health work of the past, and on the possible fruitfulness of effort in contemplation. These new functions involve training and distinguished competence in the higher arts of statistical analysis, in the methods of drawing valid conclusions from data made available by the vital statisticians of the older school of the pre-critical stage of public-health development. Questions are today being asked by the public, which cannot be answered by the statistical methods, the primary inductive methods, hitherto in vogue. New habits of thought must be inculcated; powerful, convincing arguments must be constructed by legitimate, readily-understood, sound methods. The vital statistician of the future will be a thinker, an impartial critic, an unbiased advisor.

This Section should lend its assistance in every effort which gives reasonable promise for developing the men and women who are to take up the public-health analysis of the future. There is much work to be done. The first step, it seems to your Committee, is to endorse the effort of the American Statistical Association in preparing its proposed reference text. An expression of opinion from the Section will fortify the effort of the members of the Statistical Association who are to undertake the work. The matter will be discussed by the American Statistical Association at a round table meeting the last week in December of this year on the occasion of the annual sessions of that Association. Our members are invited to submit suggestions to Professor Robert E. Chaddock, Secretary, American Statistical Association, Kent Hall, Columbia University, New York City.

Your Committee offers the following resolution for your consideration:

RESOLUTION BY THE SECTION ON VITAL STATISTICS, AMERICAN PUBLIC HEALTH ASSOCIATION, CLEVELAND, OHIO, OCTOBER 19, 1922.

WHEREAS: The professional advancement of vital statistics in America depends upon the character and quality of education in the general principles and practice common to all forms of statistics, and

WHEREAS: A suitable reference text on approved methods of statistical description and analysis is essential for the instruction of students and practitioners of all branches of statistics, therefore, be it

RESOLVED that the Section on Vital Statistics of the American Public Health Association heartily endorses the proposal of the American Statistical Association for compiling a reference work on statistical methods.

EDWIN W. KOPF, *Chairman,*
EDGAR SYDENSTRICKER,
RAYMOND PEARL,
RICHARD C. LAPPIN,
OTTO R. EICHEL.

APPENDIX TO REPORT OF COMMITTEE ON EDUCATIONAL AND PROFESSIONAL STANDARDS FOR VITAL STATISTICIANS, SECTION ON VITAL STATISTICS, AMERICAN PUBLIC HEALTH ASSOCIATION.

In order that our members may be able to follow the thought of the Committee in its work, the following tentative list of subjects of instruction in educational, fundamentals is offered. This list was submitted by your Committee to representative statisticians in the United States and abroad, and to the American Statistical Association Committee. Helpful comment was received from Professor Sven Wicksell (Lund, Sweden), Professor Corrado Gini (Padua, Italy), Dr. Major Greenwood (London, England), Dr. John Brownlee (London, England), Mr. G. H. Knibbs (Australia), and from the following statisticians and analysts in America: Professor Walter F. Willcox, Professor H. L. Rietz, Professor Raymond Pearl, Dr. Roland P. Falkner, Professor George C. Whipple, and others.

TENTATIVE PROPOSAL OF A LIST OF SUBJECTS TO BE INCLUDED IN AN EDUCATIONAL SYLLABUS FOR STUDENTS OF STATISTICS.

(a) JUNIOR STATISTICAL WORK.

1. *Statistical practice. Office and field technique.*

Statistical arithmetic (short-cuts, using calculating devices, logarithm tables, slide-rule,

etc.). Schedule drafting; principles of editing schedules, classification theory and practice. Tabulation processes: hand and machine processes, table structure, card systems. Graphics. Library technique and general information service. *(In vital statistics:* registration law and practice).

2. *Elementary mathematics.*

Algebra, with emphasis on simultaneous linear and quadratic equations, ratio and proportion, progressions, binominal theorem, variation, series (logarithmic and exponential, convergency and divergency of series, recurring series), theory of equations, permutations and combinations, probabilities (algebraic treatment only), determinants. Plane geometry, plane trigonometry, analytic geometry, differential and integral calculus, finite differences.

3. *Social science*

Elements of economics and sociology.

4. *Elements of general biology*

5. *Applied logic*

6. *Elementary statistical methods of analysis*

(b) SENIOR STATISTICAL WORK.

1. *Calculus of probabilities* as a branch of statistical logic. Theory of observations, theory of least squares and method of moments. Philosophy and history of advanced statistical methods.

2. *History and methods of official statistics*

Censuses; registration and statistical systems of principal countries; statistics in relation to national economy.

3. *Statistical forensics*

Application of statistical results to practical administration of governmental and private enterprises. Statistical counsel.

4. *Practical organization and administration of statistical work*

Office organization and management, planning and presenting statistical researches.

A MENTAL HYGIENE SERVICE FOR PRE-SCHOOL CHILDREN

ARNOLD GESELL, PH. D., M. D.

Professor of Child Hygiene and Director of the Psycho-Clinic, Yale University

Read before the Child Hygiene Section of the American Public Health Association at the Fifty-first Annual Meeting, Cleveland, October 16, 1922

ONLY thirty years ago Dr. Budin established in Paris the first infant welfare center. It was a simple but practical conception, a consultation center for the examination of babies and the instruction of mothers in child care. This idea has spread the world over, and infant welfare centers can now be found in Alaska, Australia, China, and Mexico. They have multiplied at a phenomenal rate during the last few years in England and America. Ambassador Jusserand, speaking in 1910 at the first annual meeting of the American Association for the Study and Prevention of Infant Mortality, said: "When its far-reaching results shall have been gauged, France will be as proud of Dr. Budin for his good work, as she is even of the discovery of the most startling inventions made by any of her sons in the realm of science or industry."

The Ambassador spoke with characteristic French insight; for the child consultation center, simple as it is, represents a social device with unlimited possibilities of growth and elaboration. The grafting of a mental-hygiene service on the consultation and health center organization is one of these possibilities. The center is nothing less than a vital point of contact, where child, parent, and the scientific social inheritance of the race meet in order that lives may be saved and made more complete.

In some respects this social device, the child consultation center, is of more significance even than the public school. Why? Because it copes directly with the most fundamental of all problems, the rearing of children. It makes health its undivided concern. It reaches the parent as well as the child. And it reaches the child before he has attained that stage of

relative completion and superannuation, —the school age!

In a developmental sense, the child is indeed a pretty well-finished product when his sixth year molars begin to erupt. The pre-school years are incomparably the period of most rapid and most fundamental growth, whether physical or mental. Biologically, the pre-school period is the most important period in the development of an individual, for the simple but sufficient reason that it comes first. Psychologically, the pre-school years are basic because the foundations of the structure of personality are then laid. It would not be dogmatic to say that no child mentally ever outgrew his first six years. Medically, the pre-school age is of critical consequence because it exceeds all others in mortality and morbidity. It is the strategic sector on which to concentrate the defenses of preventive medicine. Most of the physical defects of school children originated or pre-existed in the pre-school period. To an astonishing extent this is also true of mental defects and mental abnormalities.

Let me attempt to prove the last statement. From the standpoint of mental hygiene we may recognize broadly three classes of exceptional or problematic children: (1) the mentally deficient, (2) children with special sensory or motor defects which have a tendency to handicap the individual in a mental as well as physical sense—the blind, the deaf, the crippled, and the speech defectives, (3) the mentally abnormal—the psychopathic, the unstable, the delinquent—children with conduct disorder. To what extent do all these problems demand a mental-hygiene service in the pre-school period?

1. Practically every case of mental deficiency originates and is recognizable in the pre-school years. Feebleminded children are frequently misunderstood, mismanaged, and maltreated during the pre-school age, because the parents have secured neither diagnosis nor advice. There should be opportunity for early diagnosis, systematic guidance in home care, and more provisions for supplementary nursery care and nursery training. The feebleminded child of school age is receiving attention through auxiliary schools and special classes. In comparison, the feebleminded child of pre-school age is neglected.

2. The sensory and motor defectives in the aggregate constitute a very considerable group from the standpoint of public hygiene; and here again the child of pre-school age has special claims upon us. An appreciable proportion of all cases of blindness occurs in the pre-school period. Three-fourths of all deaf individuals are so handicapped before their sixth birthday. Of all the crippled, one-third become so before the age of five. Fully 80 per cent of all cases of speech defect, including the serious defect of stuttering, originate before children go to school.

Now in addition to purely medical attention all these children need a special educational oversight and a supervision of their mental welfare. They are entitled to a kind of mental-hygiene service.

Precious time is lost, injustice is done by idle waiting for the school years and the institutional years. The blind child should acquire his elementary habits of deportment and personality during the nursery years; the deaf child should learn to talk in the nursery years; the health of personality in the crippled child should be safeguarded from the first; and speech defects should be discovered and treated in their incipiency.

3. We shall not go to any psychoanalytic extreme in estimating the proportion of cases of mental abnormality which have their roots in the pre-school period. It is sufficient to say that the numerous cases of conduct disorder, perversions, behavior anomalies, which manifest themselves in the nursery years are of too serious import to be ignored. They frequently are the symptomatic heralds of later delinquencies and personality defects. From the standpoint of the public-health nurse and public-health official, it must be thought provoking that

many of the typical conduct disorders of infancy express themselves as perversions of such apparently simple functions as eating, sleeping, elimination, speaking, and obeying. The extremely spoiled child, the morbidly silent, reserved, and timid child, the domestic tyrant, and many unnamed clinical varieties of behavior disorder need timely educational procedure if we wish to lessen some of the bulky burden of nervous and mental invalidism which society now bears. Educational authorities, through increasing applications of special educational, psychological, and psychiatric methods, have addressed themselves to a program of prevention and amelioration. But the most essential and promising area for further operation, lies in the domain of public health, in the pre-school field; and this demands the development of a workable technique which will render a mental-hygiene service, not only to the more, but to the less, abnormal and to the normal pre-school child. Unless we achieve such a technique, pre-school mental hygiene will tend to remain in a tenuous state of aspirational nebulosity.

What are some of the features of a mental-hygiene service, which are at least on the horizon?

Periodical mental health examinations are a discernible possibility. The diagnostic and advisory functions of welfare and health centers should be gradually extended to include the hygiene of mental development. It will take much planning and investigation to work out a proper procedure; but it is time to take conscious steps toward the goal. At the Yale University Psycho-Clinic we have for some time, through the coöperation of the visiting nurses, paid special attention to the youngest age group of children. We have undertaken a program of research to determine the forms of mental or behavior development in children of pre-school age, and to define methods of clinical and social procedure in this field. We have examined some three hundred children at the 6, 9, 12, 18, 24, and 36 months age levels. These investigations are directed toward personality as well as intelligence traits; and suggest the possibility of formulating concrete minimum standards for guidance in a more inclusive program of developmental supervision of pre-school children. I do not think it very urgent that we affix Intelligence Quotients to the babies at milk stations; but I would admit that public health administration and welfare agencies are headed toward a policy of pre-school health supervision, which will be as comprehensive as the best health work in public schools, and which will yet come to include a mental-hygiene service from the cradle to the kindergarten.

The habit clinic, sponsored by the Baby Hygiene Association of Boston, has shown the possibility of doing preventive and corrective psychiatric work in this field. The new nursery schools in Boston and elsewhere will, no doubt, develop a very useful auxiliary service for the mental hygiene of pre-school children. Both nurseries and kindergartens have an important contribution to make.

It is extremely indicative, that a few educational as well as public-health leaders have begun to assert the social significance of the pre-school child. There is evidence that the foundations of the public school system will be dug a little deeper in the interest of public policy. This "no man's land in the field of social endeavor" is being entered from the educational as well as public-health camps.

One of the most suggestive signs of the times is Clause 19 of the famous Education Act of 1918, which confers upon local educational authorities in England, "the power to supply or aid in supplying nursery schools for children over two and under five years of age whose attendance at such a school is necessary or desirable for their healthy physical or mental development."

Under this law, over a score of nursery schools are now being supported by the

state, and a greater number are maintained by voluntary organizations. In this country several experimental and demonstration nursery schools have been established, and there are signs of an interesting nursery school movement. One of these schools, the Merrill-Palmer School in Detroit, correlates its work in a most promising way with a practical course in child care for college students.

There is, as yet, no reason to predict that the nursery school will displace the American kindergarten. It may be hoped, however, that this new movement will put the present kindergarten on mettle and transform it into a more adaptive, health-promoting agency which will perform a bigger and more discriminating work in the field of pre-school hygiene.

It appears, then, that a mental-hygiene service for pre-school children can be realized if we extend and exploit the instruments which we have already at our disposal: (a) the consultation and health center to provide a more systematic supervision of mental development; (b) conferences for the guidance of parents; (c) public-health nurses, psychiatric social workers and pre-school visiting teachers to render more direct assistance in the home; (d) adaptations of nursery establishments, kindergartens, and special classes in behalf of the more exceptional, handicapped, infants; (e) an active alignment of a reconstructed kindergarten with the public-health and child-welfare agencies of the community; (f) an effective type of pre-parental education dealing with the mental hygiene of child care.

These possibilities are above the horizon. They will not all be realized tomorrow, but, perhaps some day after tomorrow the agencies and movements mentioned may be coördinated to render a hygienic service, which will seek to conserve the mental health of the young child, and which will increase his mental stamina.

□

The Science of Life.—A new motion picture course of instruction, produced by the Bray Productions, Inc., under the direction of the Surgeon General, United States Public Health Service, entitled, "The Science of Life," provides the first course of visual instruction ever produced to cover the subjects of general biology, communicable diseases and personal hygiene. It is intended for general educational use, and is arranged for showing one-, two- or three-reel units, according to selection. There are thirteen reels, each approximately 1,000 feet in length.

No description could do justice to such a motion picture. Even still pictures on the subject, though interesting, would fall far short of the accomplishment of "The Science of Life," which begins with the earth before life appeared and goes swiftly into the subject of the earliest forms of life through the study of geology. The simplest forms of life of today are shown in exemplification of the probable way life began. Reproduction in lower forms of life is shown by photomicrograph studies and animated drawings, gradually leading on to reproduction in the higher forms. The films on communicable diseases show how plants and animals cause disease, the different kinds of bacteria, how they feed and multiply, and the uses of antiseptics, and methods for prevention and cure. The films on personal hygiene cover health habits for young women, for young men, and general health habits.

Special arrangements can be made for showing these pictures to members of organizations in the projection room of the Bray Productions, 130 West 46th Street, New York City, and special prices are made to those ordering several films.

THE HEALTH OFFICER'S EXCHANGE

Under this head the Journal will print short articles giving accounts of actual experiences, methods and plans which have proved of practical utility in local health organizations, in the hope that health officers and sanitarians generally will find them of interest and value. Health officers and other health workers are invited to submit their experiences. Manuscripts must be limited to 1,500 words, preferably 1,000. The briefer and more concisely written they are, the better the chance of their publication.

SKETCH MAPPING FOR PUBLIC HEALTH PROBLEMS

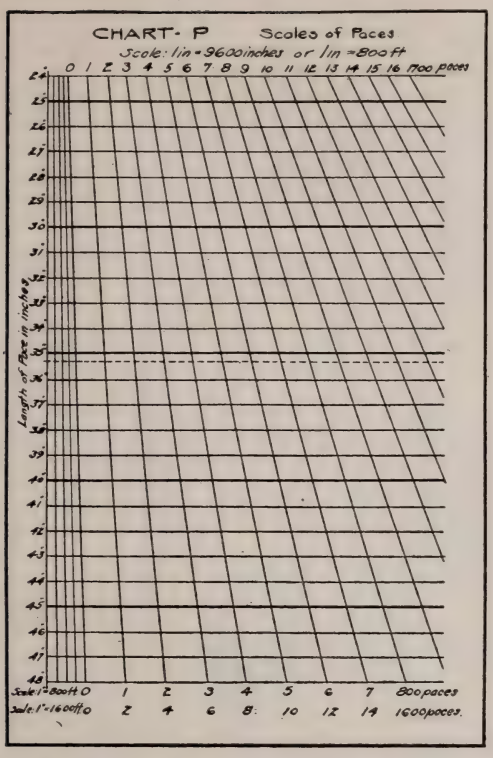
The public-health officer of today recognizes the necessity of having good maps of the territory under his consideration. Especially is this true in yellow fever, malaria and hookworm studies. It has been found, however, that it is not always possible to obtain reliable maps of all territories, especially in most foreign countries. Therefore it is quite necessary that the public-health officer, whether a physician or otherwise, should know the principles of sketch mapping in order to construct maps sufficiently accurate in scale and represented data to be of use in his work. It is the purpose of this paper to present the subject of sketch mapping in the simplest form possible, following closely the methods employed in the military service of the United States.

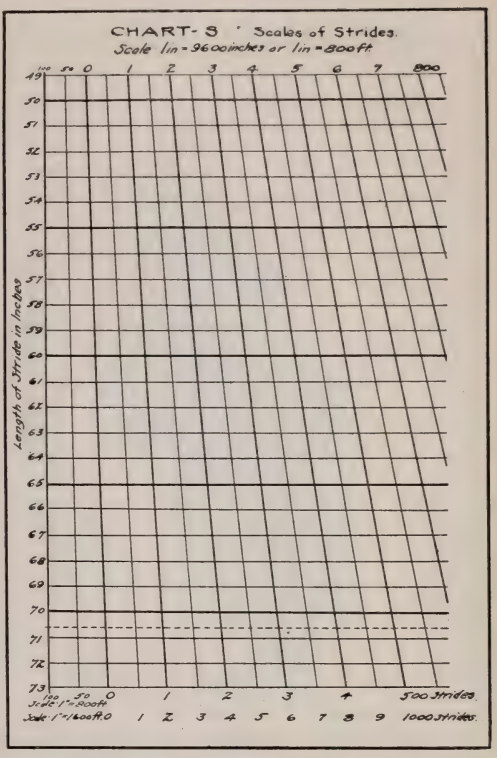
In preparing sketch maps of this nature no measuring instruments are necessary other than one's pace or stride, therefore, the pace or stride of the individual must be accurately determined as the basic unit of measure. A pace is the distance from the heel of one foot to the heel of the other foot in walking naturally. A stride is the distance from the heel of one foot to the heel of the same foot as it strikes the ground the second time or, in other words, a stride is equal to two paces. In order to measure one's pace or stride it will be necessary to lay off on the ground an accurately measured distance of say 500 yards, double this distance would be better. This distance should then be paced off at least four times, noting the number of paces each time. The average of these trials will give a fairly accurate result. For example, if the average were 510 paces for a distance of 500 yards, this would make 35.3 inches, the actual length of one pace. A stride would be twice this or 70.6 inches.

Without going into the mathematics of converting this pace or stride into the scale desired on the map as inches to miles or inches to feet, charts P and S may be consulted and the corresponding scale to the figured length of pace or stride is that to be used in plotting the map in the field.

The ordinary scales adopted for use in the military service are 3 inches, 6 inches, or 12 inches to 1 mile. However, by using these scales in uneven feet it will be found more difficult to reproduce enlargements of the field sketch when the case arises. In the engineering profession the ordinary scales used for towns and cities are 1 inch to 1,000 feet, 800 feet, 400 feet or 200 feet. It will be noticed that these scales are multiples of 2 and, therefore, for purposes of enlargement can be easily handled. Hence the scales here chosen for the field or flat sketch maps are 1 inch to 1,600 feet and 1 inch to 800 feet. On the basis of these two scales Charts P and S have been plotted to give the corresponding scales of paces or strides for any length pace or stride.

In case a field sketch is made on the scale of 1 inch to 800 feet or 1 inch to 96,000 inches (i. e., 1 inch on the map equals 96,000 inches on the ground) it would be found to be too small for detail, spotting of houses or other similar features, but since this sketch is made on cross section paper it can easily be enlarged by the coördinate method to twice, four times and eight times its size, as the case may be, to reproduce a sufficiently large map. In Fig. 1 is shown the method of enlargement by the coördinate method. The original field sketch is on the scale of 1 inch to 800 feet plotted on cross section paper, it is desired to enlarge this sketch to twice its size, or to the scale of 1 inch





to 400 feet. This is easily done by doubling the coördinates as represented in the figure.

MATERIALS NECESSARY FOR MAP SKETCHING

The Board: A perfectly smooth soft pine board, preferably 14 inches by 13 inches with absolutely squared edges is necessary, to which must be attached a small compass needle. A small watch compass is excellent for this purpose and may be affixed to the board by cutting a hole the size of the compass in order to hold it in a fixed position at all times. Place the compass in such a position as to have the north and south line parallel to one edge of the board. (See Fig. 2.)

The Alidade: The alidade is simply a small triangular piece of hard wood weighted with lead inserted in a small hole in the end to give it weight. It should be about 6 to 8 inches in length and have smooth surfaces on which to mark the various scales. This triangular scale or alidade is used as a sighting instrument and rests on top of the board (See Figs. 2 and 3).

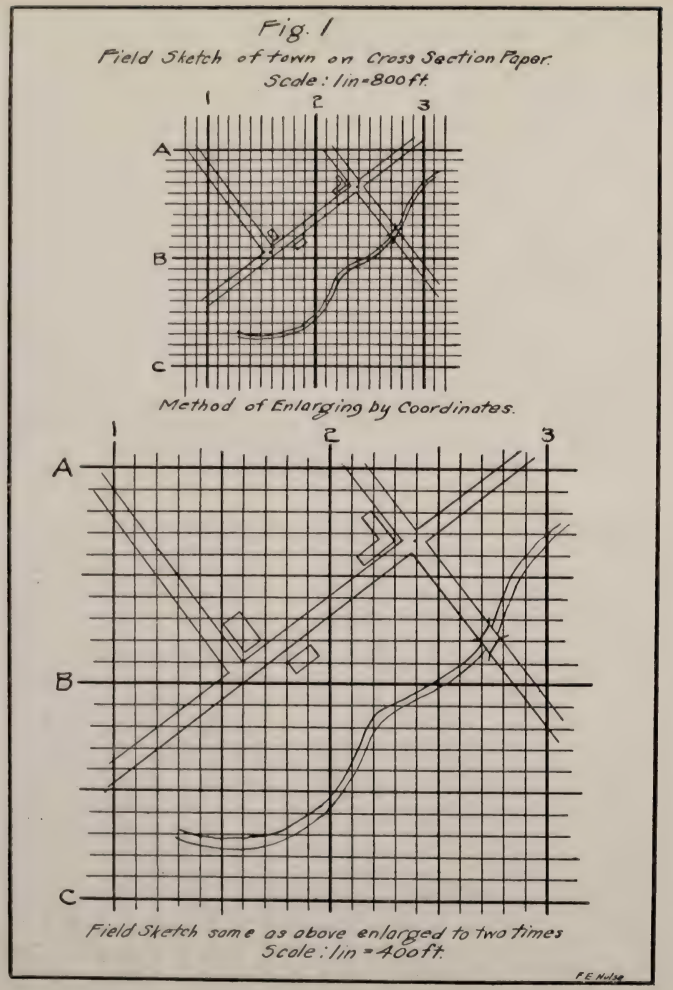
Paper, Pencil and Thumbtacks: Any good grade cross section or profile paper may be used, preferably ruled in one inch squares and divided into tenths. A pencil of hardness 4H is the best for field use. Thumbtacks are necessary to hold the paper in place on the board.

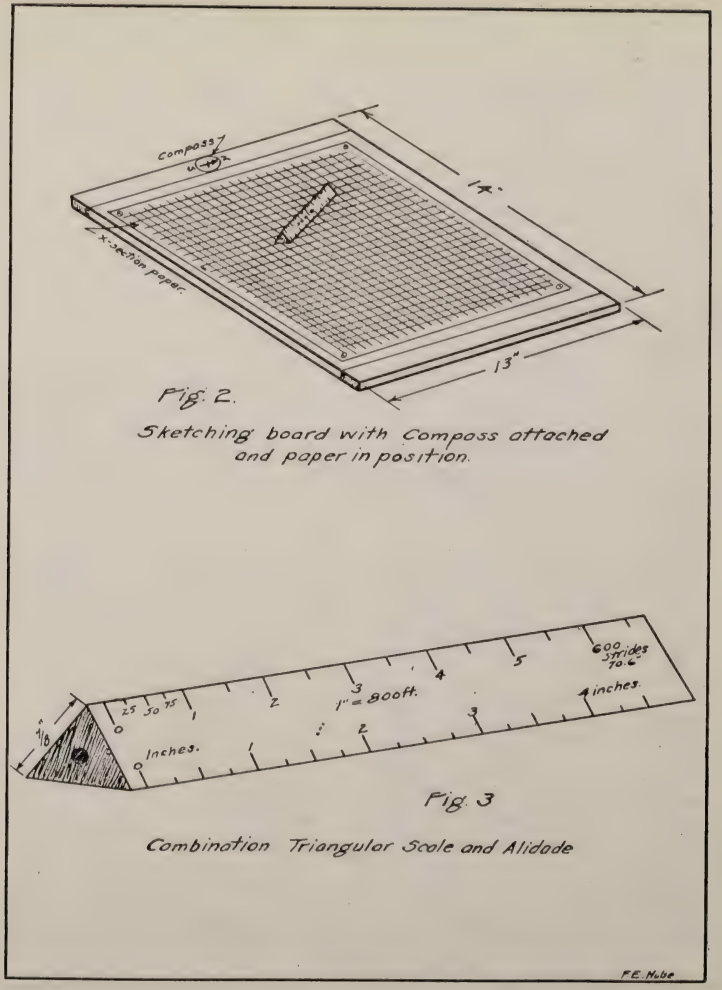
PREPARING THE SCALE FOR USE ON THE ALIDADE

As stated above, the length of the pace determined was 35.3 inches. Therefore, placing the alidade along the line on the Chart P corresponding to 35.3 inches, transfer the divisions of this line to one edge of the alidade. (In this case see the dotted line on Chart P.) This scale then will represent a scale in paces equal to 35.3 inches to correspond to the map scale of 1 inch to 800 feet. If the stride scale is preferred, and it is believed the scale of strides will be found more convenient, the dotted line on Chart S can be used, which is 70.6 inches as figured above. On the other edge of the alidade, directly opposite this pace or stride scale, lay off another scale in inches, this latter to be used in reading and scaling the map in the office.

METHOD OF SKETCHING THE MAP IN THE FIELD (FLAT SKETCH)

Assuming the sketching board is prepared with cross section paper and compass, select a suitable point from which to start the sketch, preferably at the intersection of two streets on the extreme edge of the area to be mapped. With this as a starting point hold the board in such a position as to have one edge in a line parallel to the north and south line as shown


Fig. 1
Field Sketch of town on Cross Section Paper.
Scale: 1in=800ft.
1
2
3
A
B
C
Method of Enlarging by Coordinates.
Field Sketch same as above enlarged to two times
Scale: 1in = 400ft.
F.E. Nolte


Compass
X-section paper.
14"
13"
Fig. 2.
Sketching board with Compass attached and paper in position.
600 strides to C
4 inches.
1" = 800ft.
25 50 75
1
2
3
4
5
1/8
Inches.
Fig. 3
Combination Triangular Scale and Alidade
F.E. Nolte

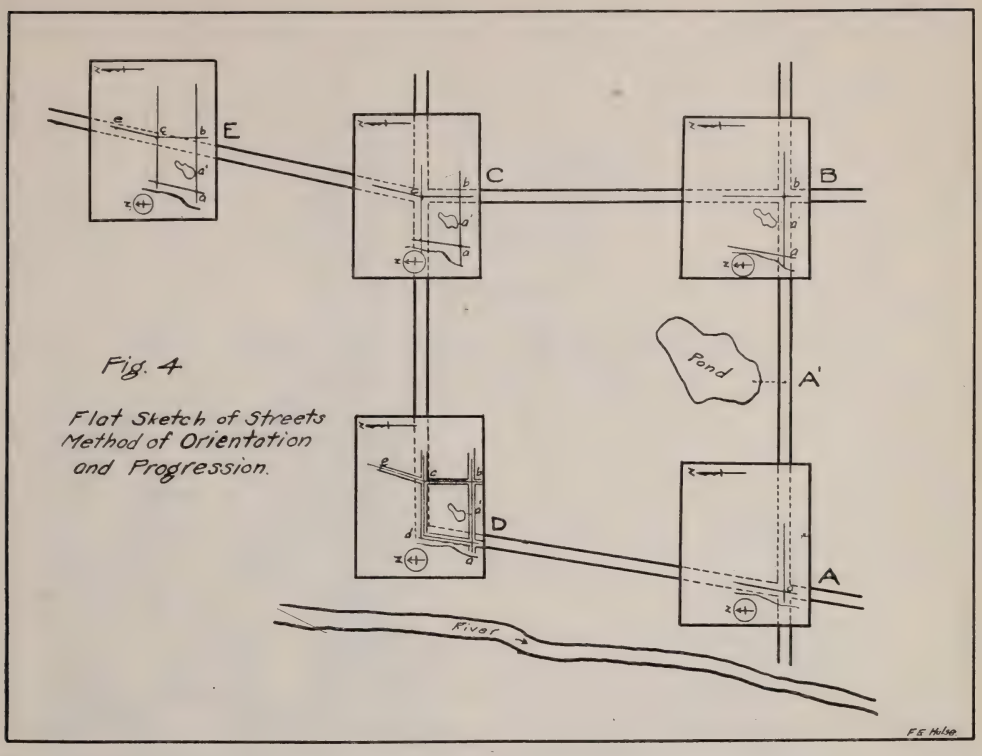


Fig. 4

Flat Sketch of Streets Method of Orientation and Progression.

by the compass needle. Now draw a line on the edge of the map in the north and south direction marking the north end N. In all future positions when taking sights and readings be sure that the board always points in the same direction, namely, north and south, parallel to the compass needle. This placing the board in the N and S line at each new position is known as orientation.

Figure 4 represents a portion of a town which it is desired to map, and shows intersecting streets A, B, C, D and E. Since point A is on the extreme edge of the town, assume this as a starting point. Holding the board in the hands take position at A, orient the board until the N and S line on the map points north as indicated by the compass needle, the mark (a) on the map. Now (a) on the map corresponds to A on the ground. Facing in the direction of B, place the alidade with one edge along point (a) on the sketch and sight along the top edge to B, drawing a line in the direction of B indefinite in length. Without changing the position of the board, do the same for point D. Now from point A on the ground pace off the distance to B and with the pace scale on the alidade plot this distance on the sketch. Now with point (b) on the board over B on the ground, orient the board and sight to point C and in all other directions if at a street intersection, drawing the lines of directions on the sketch. After pacing to C and plotting the distance on the sketch, orient at C and repeat for points D and E. In this manner the sketch progresses from point to point with the board always in the same position with respect to the N and S line. The distance from point D to point A is the closing line and acts as a check on the accuracy of the sketch. At the same time that these distances are being paced off all important features along the streets may be noted by plotting the number of paces along the line and sighting at right angles to the line, recording the distance in paces to the object. For example: In Fig. 4 midway between points A and B is a pond, point A′. In pacing from A to B when opposite this pond at point A′, plot the number of paces on the sketch, orient the board and sight to the pond, pace and plot as before. In this manner houses and other important features may be plotted on the sketch as it progresses.

Fig. 5 is a sketch map made in this manner, the starting point being at point (a) and the closing point at (a′) the direction of the course

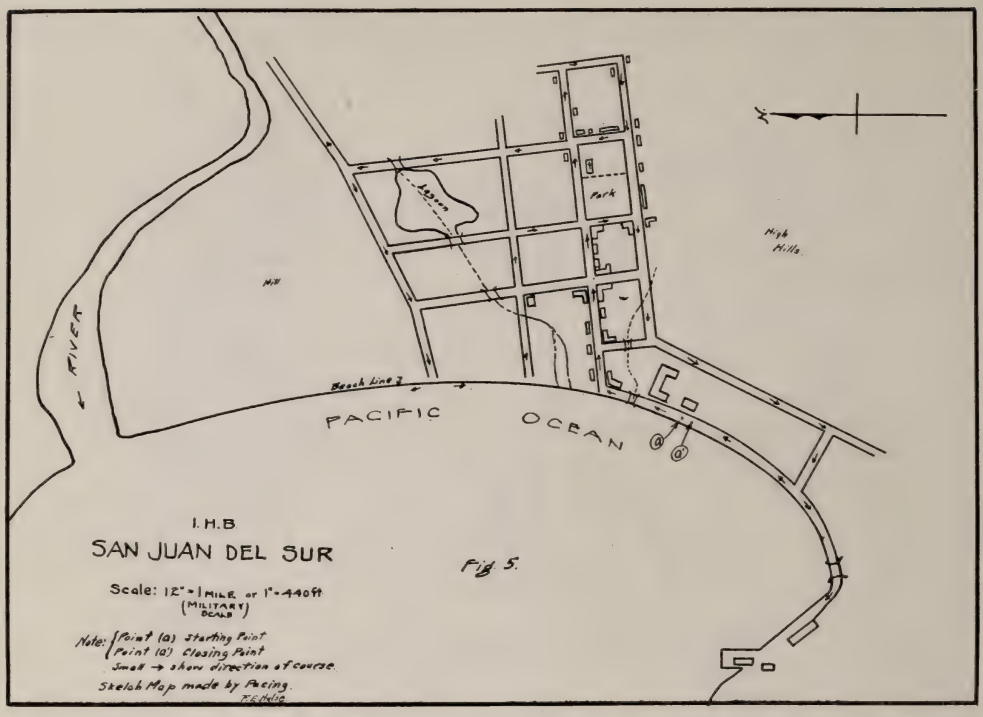


Fig 5.

taken being represented by the small arrows in the streets. The closing distance or difference is very small, considering the errors that might be present in inaccurate pacing, etc.

It is to be noted that sketch maps of this nature are plotted in the position of north and south as given by the compass needle which is not the true north, the north of the compass being known as the magnetic north. Therefore, this should be noted on the map.

The above is the method of preparing flat sketch maps without regard to differences in elevation and other topographical features. Contours or imaginary lines of constant elevation are not necessary in the ordinary spot maps used in public-health work, except in the case of malaria studies where the differences in elevation are vitally important for the purpose of determining drainage courses. Such maps for malaria control should, therefore, be prepared by an engineer with accurate instruments. For those who have the desire to acquaint themselves with the methods of plotting contours it is suggested that they obtain the little book published by the United States Infantry Association: *Military Sketching and Map Reading* by Grieves. The above publication was used as a reference in preparing this paper.

F. E. HULSE,
Sanitary Engineer,
International Health Board.

PSYCHOLOGY IN RURAL PUBLIC HEALTH WORK

Men without scientific training usually do not properly comprehend the principles upon which scientific knowledge is based and are inclined to regard opinions founded upon such knowledge as mere individual opinions or deductions as a result of personal observations. In consequence they regard themselves equally competent to express opinions upon scientific subjects as those who are qualified by knowledge and training in their special lines of activity. If, however, you can enter into an intelligent discussion of subjects with which they are familiar, you will be able to gain their confidence and respect for the opinions which you desire to give them. The following is an illustration:

At one time I arranged for a meeting of a board of health in a remote rural community. The board was composed entirely of farmers who from their environment had had little opportunity of mingling with people

of other pursuits. The purpose of this meeting was to secure the adoption of a sanitary code, to which I was warned there would be great opposition. I therefore planned to have a short conference with the members before the meeting was called. The meeting was held in the season of the year when all of them were engaged in sowing peas. Owing to the fact that my father was a pioneer in the raising of garden peas, I was familiar with the different varieties and the relative seasonal value of each. By the discussion of this subject I was able to gain their confidence to the extent that I was invited to some of their homes to sample their varieties when they were ready. By thus gaining their confidence I was able easily to secure the passage of the resolution.

"SI. COLOGY."

CHRISTMAS AND THE DOUBLE-BARRED CROSS



Everyone who buys Christmas seals becomes a working partner in the campaign to stamp out tuberculosis. Every seal bears a message of vast accomplishment and tells of the faith of those who started the nation-wide crusade against this disease. That the work has been successful cannot be doubted when it is realized that in those years in which seals have been sold the death-rate has been cut in half.

Fifteen years ago, having read of the Christmas stamps sold in Denmark for the support of a children's hospital, Miss Emily P. Bissell, at that time secretary of the Delaware Red Cross Chapter, conceived the idea of raising funds for anti-tuberculosis work in the same way. She started with but $40, secured from two friends, and that year $1,000 was obtained in this way and paid on the site of the first tuberculosis sanatorium in Delaware, known as Hope Farm.

The aim has always been to spread to the public information regarding prevention. Through Miss Bissell's demonstration and efforts, the American Red Cross decided to take up the enterprise on a nation-wide scale the next year, 1908.

The 1919 seal was the first to carry the double-barred cross, which specifically symbolized the fight against tuberculosis, and is the emblem of the National Tuberculosis Association. This year the seal is symbolic of the helpful guardianship of this cross over the children of our country.

Sixteen years ago the death-rate was 200 per 100,000 in the Registration Area, and it is now but 100 per 100,000, which means a saving annually of 100,000 lives.

Christmas Seal money is used for increasing the number of tuberculosis hospitals and sanatoria, which in 16 years has increased from 100 to 700; for establishing clinics and dispensaries; securing special tuberculosis nurses who instruct the mother and family in the home; for research work and statistical study; for publicity; for the Modern Health Crusade, which has enrolled 8,000,000 school children who are learning daily health habits; toward securing over 3,000 open-air schools and preventoria.

Though tuberculosis is a preventable disease, there are at present over 1,000,000 active cases in this country, and probably as many inactive cases. If everyone can be taught to live a healthy life with proper food and rest, this dread disease can be wiped out.

Over 1,000,000,000 seals will be in circulation this December. This is the chance for everyone to participate, because every seal bought helps. The seal carries a cheerful thought to the recipient of package or letter; and possibly reminds someone else that he, too, may do something to help those less fortunate than himself. Buy seals in December and let every package or letter carry the message of hope and health that is hidden therein.

EDITORIAL SECTION

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DR. HENRY F. VAUGHAN TO EDIT THE JOURNAL

Mr. Kenneth M. Gould, who, during the last year, has given very capable service as Associate Editor of the *Journal,* has resigned in order to accept a position with the Rockefeller Foundation. Members of the Association will receive with much satisfaction the news that the Executive Board has voted to place editorial policy and control in the hands of Dr. Henry F. Vaughan, whose noteworthy record as Commissioner of Health of Detroit has placed his department in the foremost rank of municipal health departments.

No less gratifying is the announcement that Dr. Mazÿck P. Ravenel, a former President of the Association, has consented to assume primary responsibility for the editorial section.

At their own request, Drs. Vaughan and Ravenel will serve without remuneration.

Surely, few, if any, workers in the public-health field could be more admirably adapted to their work than new editors. The *Journal* bespeaks for them, the coöperation of every member of the Association, and confidently predicts that, as a result of their participation, the *Journal* will become a more helpful stimulus to public-health development, than ever before.—A. W. H.

TOWARD A PROFESSION OF PUBLIC HEALTH

The adoption by unanimous vote in an open meeting of the Association at Cleveland, Monday evening, October 16, 1922, of the Report of the Committee on Reorganization, Dr. Henry F. Vaughan, chairman, marks the beginning of a new epoch in the history of public health in America, as it assuredly does in the history of the A. P. H. A. The report is printed elsewhere in this issue, together with the amended Constitution and By-Laws, which embody the recommendations of the Committee.

Far-seeing observers of the evolution of the public-health movement have felt for years past that the only solution of the many vexing problems involved was the placing of public health on a truly professional basis and the education of the laity to a full recognition of the need for such a profession, with all that it implies of scientific authority, specialized training, preventive point of view, adequate remuneration, safe tenure, and public support by governmental appropriations and an enlightened citizenry. By its recent action the Association has taken an essential step toward carrying out its part of this program. The educational campaign must now be pressed with equal vigor.

The central feature of the new constitution is the establishment of the fellowship, composed of members of the Association in good standing for two years or more, who, in the judgment of their colleagues, are qualified by training, experience, and achievement to become the leaders of the new profession. Voting power will be limited to the Fellows; and officers of the Association and of the sections, as well as chairmen of committees, must be selected from among the Fellows. After a painstaking investigation, about five hundred names were chosen by the Governing Council at Cleveland to form the first group of Fellows, a list of whom will be published in the next issue of the *Journal*. This does not mean that the Fellowship will be an exclusive body. Hereafter applications for Fellowship will be considered by the Councils of the various Sections representing the specialty with which the prospective candidate is affiliated. It is expected that new Fellows will be created each year as they fulfill the necessary qualifications.

It was voted to reduce the number of members of the Governing Council elected at large from 45 to 30, and for compensation to include in the Council the chairman, vice-chairman, and secretary of each of the recognized Sections of the Association, instead of a single representative of each Section as formerly. The Sections and the parent body will thus be kept in closer and more effective contact.

Membership in the Association will still remain a coveted privilege, carrying with it the receipt of the *Journal*, and being limited to junior members of the profession actually engaged in official or non-official health work. Persons who are interested in public health, but not as professional workers, may become Associate Members. Provision is also made for Honorary Fellows, Sustaining Members, and affiliated state public-health societies.

There are other minor changes in the Constitution, all of which deserve the study and support of the whole membership. The Association's main objectives are delimited and set forth as "the preparation and publication of standard scientific procedures in public health," toward which a promising start has already been made in the various Standard Methods of the Association and with more recent Municipal Health Department Practice Report.

AN AWAKENING

The awakening of an appreciation by the general public of the importance of sanitary science has long been one of the goals of sanitarians. Judging from recent use of health material and plans for further utilization of it by prominent popular magazines, such an awakening seems to be in the incipient

stage, at any rate. The *National Geographic Magazine* for September carried an article entitled "Map Changing Medicine"; *Leslies'* has been writing up the chiropractors, and the *Atlantic Monthly* published in its July number an article on "Osteopathy, Chiropractic, and the Practice of Medicine"; *Current History* has for its feature article in November a story called "For the Health of the World," by one of our own editorial assistants; and numerous other magazines, such as the *Century, Harper's,* the *American, Woman's Home Companion, Good Housekeeping,* and even *Hearst's* are using material on public health.

Added to the articles are announcements of several popular magazines devoted to health. Doubleday Page has begun to issue a monthly, *The Health Builder;* the American Medical Association expects to put out a popular health magazine early in 1923; while another national magazine devoted to health has been issued in Chicago for several months. Other important advances include the assumption of the editorial chair of the *Nation's Health* by Professor C. E. A. Winslow of Yale, and the appointment of Dr. Haven Emerson as health editor of the *Survey.*

These ethical health journals are greatly needed to offset the unscientific buncombe put out by certain faddists and physical culturists, which, apparently authentic to the layman more or less ignorant of sanitary science, does more harm than good.

This new interest displayed by publishers in the field of health may not be *the* great awakening of a national sanitary consciousness to which all sanitarians hopefully look forward, but it is a most worthy beginning and *an* awakening of great promise.

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ASSOCIATION NEWS

NEW GOVERNING COUNCIL

At the Cleveland meeting, an entirely new Governing Council was elected as a part of the Reorganization program. A complete list of the members of the new Governing Council is published on the first advertising page on white paper in this issue.

OUR NEW PRESIDENT

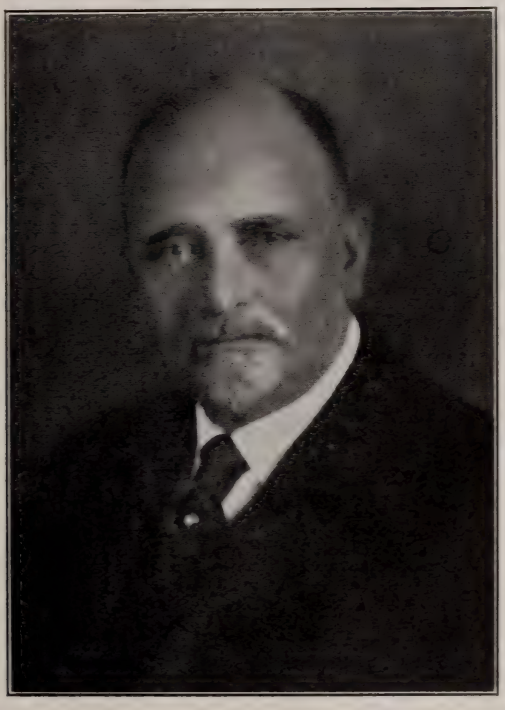
Dr. Ernest C. Levy, who was elected President of the American Public Health Association at its Cleveland meeting, was born in Richmond, Va., on August 11, 1868. His great-grandparents came to the United States from England in 1818, and, after a few months, settled in Richmond, where his family has resided continuously ever since that date.

After graduating from the high school, in 1884, Dr. Levy spent three

years at Richmond College. He graduated in medicine from the Medical College of Virginia in 1890, and then spent several months in special laboratory work at the College of Physicians and Surgeons, in New York. For the next two years he was on the house staff of Mount Sinai Hospital, New York.

In 1892, he entered general practice in Richmond, giving this up in 1897, when he was elected Professor of Histology, Pathology and Bacteriology in the Medical College of Virginia, which position he held until 1900. For the same period he was editor of the Medical Register.

In 1899, Dr. Levy was engaged by the city of Richmond to conduct certain bacteriological studies in connection with a proposed system of water purification. In the course of this investigation, he became attracted to the



E. C. Levy, M. D.

held of public health, in which he has been exclusively engaged ever since—a period of twenty-three years.

In 1902, he entered the Massachusetts Institute of Technology as a special student in biology and public health, under Prof. Sedgwick, who, three months later, advised him to accept a position under Mr. George C. Whipple (now Prof. Whipple) in making an extensive study of the water supply of Waterville, Maine. This lasted until November, 1903, and Dr. Levy then returned for further special work at the Massachusetts Institute of Technology.

Dr. Levy returned to Richmond in June, 1904, to conduct further experimental studies of the city's water supply. In December, 1905, he was ap-

pointed to the newly created position of City Bacteriologist, and, in July, 1906, he became Chief Health Officer of Richmond, under a reorganized health administration.

His record as Chief Health Officer of Richmond is well known. Besides completely reorganizing the health work of the city and putting it on a proper basis, he personally made a number of important contributions to the general fund of knowledge in the field of public health. His special studies of southern typhoid and infantile diarrhoea and his work in connection with fly-breeding and control are particularly well known and have become accepted practice.

Dr. Levy's work in the sanitary control of Richmond's milk supply is generally regarded as having given that city the best milk supply of any city in the United States. In 1911, he was selected by the New York Milk Committee as one of twenty experts, chosen from the entire country, to constitute the National Commission on Milk Standards. He is one of the fourteen original members of that body who are still on the Commission.

When Dr. Levy became Chief Health Officer of Richmond, in 1906, he was the only technically trained sanitarian in the South devoting his whole time to public health. His work in Richmond was a leading factor in giving a start to the great development in public-health work which has since taken place in that section of the country.

In August, 1918, Dr. Levy entered the United States Army, as Captain in the Medical Corps, and was assigned to Camp Pike as Camp Epidemiologist. He was commissioned Major two months later.

In January, 1919, he resigned from the service to accept the position of Director of Public Welfare in Richmond, under its new form of government. This office he now holds. His department has under it the Bureaus of Health, Hospitals, Charities, Relief, Employment, Markets and Public Baths.

Dr. Levy has been a member of the American Public Health Association since 1904. When the Section of Municipal Health Officers (now the Section on Public Health Administration) was organized in 1908, he was elected Secretary, which office he held for eight years, until elected Chairman of the Section in 1916. He was a member of the old Advisory Council for many years, and has been almost continuously a member of the Board of Directors (now the Governing Board), and frequently a member of the Executive Committee, under its various names. He has attended all but two of the nineteen annual meetings of the Association which have been held since he became a member in 1904—the Mexico City meeting in 1906, when he had just become Chief Health Officer of Richmond, and the Chicago meeting in 1918, when he was in the Army.

Any statement concerning Dr. Levy's useful career would be incomplete without a word as to his service as a builder of men. In this regard, we can do no better than to quote a recent editorial from the *Richmond News Leader*:

"A very important part of his career has been his relation with younger men. When he undertook to organize a modern health department in Richmond, he had to train his staff. He adopted the practice of employing a young physician as Medical Inspector and of equipping him to be his assistant. He conducted in effect the first school of public health in the South. His 'pupils' in every instance were called to assume larger duties."

RESOLUTIONS

Presented by the Resolutions Committee: Dr. Haven Emerson, *Chairman*, Dr. Watson S. Rankin and Dr. Isaac D. Rawlings, and adopted by the American Public Health Association at the Fifty-first Annual Meeting, Cleveland, October 18, 1922.

STEPHEN SMITH ADDRESS

1. The Committee on the Stephen Smith Address offers the following preamble, resolution and message to the public:

WHEREAS the death of Dr. Stephen Smith, an illustrious founder of this Association, has deprived the profession of preventive medicine and the practitioners of public-health administration of a devoted student and a wise counselor, and the people of all nations of a physician who consecrated himself to the health of others; and

WHEREAS his last request and advice to this Association a year ago was: 1. To seize the opportunity of placing the public health on a more scientific basis; 2. To replace the scriptural ideal of longevity by one more consonant with our present reasonable belief; 3. To send messengers of hope in a new scientific standard of long life throughout the world in schools, churches and legislative halls by word and press and film; therefore, be it

RESOLVED that the American Public Health Association send forth today the following statement of the accomplishment and promise of health protection:

As our governments, our social order, our religious customs depend for their strength upon the integrity and continuity of the family, we may well call attention to a result of public-health services even more brilliant than the astonishing sum of lives saved; namely, the addition of many years to the length of happy, healthy lives.

A civilization that can safeguard the lives of its parents and wage-earners, until the children have been launched in full physical and mental maturity upon their independent home building, has made notable progress.

Within the past seventy-five years the average duration of human life has been extended by not less than fifteen years in many of the great nations of the world.

Furthermore, the gains in length of life have been greater in the past twenty years than in the previous fifty. The improvement in the prospect of long life is not only continuing but at an accelerated rate.

Nor is there reason to doubt the certainty of still further great additions to the expected span of life for those peoples who read aright and understand clearly the lessons of science.

Using the best past experience of some of the progressive nations, we can see that already an average length of life of sixty-five years can be promised to those communities who will best apply what is already well tested knowledge of health protection.

From a span of forty years in the England and Wales of 1840-50, we have already passed to one of sixty in some of our United States in 1920. And yet we have but to use for all our people the measures here and there applied for the benefit of the various age groups, to see at least five years more of life in our hands for the asking.

In New Zealand they have all but attained for their people an average length of life of sixty-five years, and this is ten years more than we reached in the Registration states of the United States in 1920.

In England seventy-five years ago, one-quarter of all those born, died before they were three and one-half years old; one-half died before they were forty-four and one-half years old, three-quarters died before they were sixty-eight and one-half years old. While ten years ago it was not until the age of thirty-three and one-half that one-quarter died; not until sixty-one and one-half years that one-half died, and not until seventy-four that three-quarters died.

In New Zealand in the years 1906-10 one-quarter of those born did not die until the age of forty-eight and one-half years, one-half until sixty-eight and one-half years, and three-quarters until the age of seventy-eight.

It is the opinion of the American Public Health Association that the maximum life expectation is far from having been attained, even with no further additions to our knowledge of the cause and means of prevention of disease.

By adding to scientific control of communicable diseases and the protection of infancy, the avoidance of disorders of nutrition and the degenerative diseases of middle age we may well promise the attainment in the next fifty years of a span of healthy life beyond the scriptural ideal of three score years and ten.

As we now measure the conscience and effective intelligence of communities by their care of infant life, we shall in the future test the faith of our people in science, and their courage in performance, by the lengthening span of life they win for the mothers and fathers of the nations.

We, the health workers of our communities, are confident that there is nothing inherently impracticable or extravagant in the proposal we make that many nations may attain such knowledge of the laws of health, appropriate to each age and occupation, to each climate and race, that within the next fifty years as much as twenty years may be added to the expectancy of life which now prevails throughout the United States, and to this goal we dedicate the efforts of our Association as urged by our departed leader, Stephen Smith, confident that an informed

and convinced public will give the best assurance of success.

HERMANN M. BIGGS.
LEE K. FRANKEL.
HAVEN EMERSON, *Chairman.*

October 18, 1922.

2. THANKS TO CLEVELAND

RESOLVED that the American Public Health Association express its gratitude to the mayor of the City of Cleveland, and to the directors of the bureaus of his administration, to the local committee of arrangements, to the Cleveland Chamber of Commerce, and to the management of the Hotel Statler, for the care they severally have taken of the interests and comforts of the members attending this, the fifty-first annual meeting of the Association and to the many friendly and hospitable people of the community of Cleveland for making our work here the more profitable and our pleasures the more enjoyable.

3. ANIMAL EXPERIMENTATION

RESOLVED, that the American Public Health Association, now convened in the City of Cleveland, records its conviction that experiments on living animals have proved of the utmost service to the public health in the past, and, therefore, to civilization, and are indispensable to the future progress. Be it further

RESOLVED, that the American Public Health Association is unanimously opposed to the passage of H. R. 12605, and that a copy of these resolutions be furnished the Military Committee of the Senate of the United States and the House of Representatives; and

RESOLVED further, that the President of the American Public Health Association be authorized to appoint a standing committee of five, to be known as the Committee on the Defense of Research, to take such action as will in its judgment safeguard standard routine laboratory methods of procedure, and animal experimentation, from all causes and conditions calculated to prevent or hamper the development of methods for the diagnosis, prevention, cure and treatment of disease, and for the protection and the promotion of the health of human beings and domestic animals.

4. STANDARDS FOR THE PRACTICE OF HEALING

RESOLVED, that it is the sense of the American Public Health Association that there should be but one standard of fitness for all who desire to practice the healing art, and but one channel through which persons desiring to practice that art may obtain licenses so to do.

5. PUBLIC HEALTH COURSES IN MEDICAL SCHOOLS

RESOLVED, that medical schools be urged to include in their curriculum a minimum of seventy-two hours for the study of public health and preventive medicine, preferably in the third or fourth year of their undergraduate course. That the teaching be in part clinical, and that special emphasis be placed upon education in the means of lessening infant morbidity and mortality. That a copy of this resolution be sent to the deans of all medical schools of the countries represented in the Association.

That a committee of five be appointed by the President of the Association to report at the next annual meeting upon the time now devoted to such studies in the medical schools, their adequacy, and the text books recommended.

That this committee further outline and report a model course of instruction in public health and preventive medicine, together with a list of such text books as are considered of special value.

6. SCHOOL INSTRUCTION IN HEALTH HABITS

RESOLVED, that the American Public Health Association urge all schools to adopt and put into practice a systematized, graded practical course in health habits, and health instruction, persistence in one, and progress in the other, to have the same relation to general scholastic standing as adequacy in any other major subject in the school curriculum.

That a copy of this resolution be sent to all state and provincial superintendents of schools, and to superintendents of schools of cities of the first class, to the National Educational Association, and to presidents of all colleges and universities;

That a committee of five be appointed by the President to report at the next meeting of the Association upon the progress already made towards adequate health teaching in the schools; upon legislation bearing upon this subject, upon text books now used, or recommended by the committee for school use and upon outlines of such courses in health teaching as have already been prepared and put into use.

7. STUDY OF PNEUMONIA

Inasmuch as the mortality from acute respiratory diseases is an important and urgent problem calling for control; be it

RESOLVED, that a committee of ten Fellows and Members of the American Public Health Association be appointed by the President for the purpose of studying the incidence and mortality of pneumonia and the means for the prevention and control of this disease, and report to the Association from time to time, the results of their researches.

8. MUNICIPAL HEALTH DEPARTMENT PRACTICE REPORT

RESOLVED, that the grateful appreciation of the Association be expressed to the Metropolitan Life Insurance Company for its generous gifts of funds and services which made possible the work of the Committee on Municipal Health Department Practice;

And that the thanks of the Association be extended to the officers of the United States

Public Health Service and to the health officers of the various municipalities through whose coöperation the study was made effective.

9. LOUIS PASTEUR

Louis Pasteur was born on December 27, 1822.

After his preliminary education, he took up chemistry as his life work. The rotation of light by crystals early attracted his attention, and his demonstration of the part played in the phenomenon by molecular dissymmetry gave him wide reputation among scientists.

In studying the change from neutrality to rotation which sometimes took place, his attention was drawn to the part played by microorganisms, and from this developed the investigation of fermentative processes. In rapid succession came his studies of fermentation of milk and diseases of wines and beer. The question of succession of spontaneous generation was immediately raised, since all fermentative processes were at that time attributed to the action of oxygen.

The importance to preventive medicine of his demonstration that spontaneous generation of disease does not exist cannot be exaggerated, for on this the entire foundation of modern preventive measures in communicable diseases is based.

The relation of fermentative and putrefactive processes to disease was evident to him, and the transition to the study of disease was a natural one.

Time does not permit a recital of the many discoveries which followed in rapid succession. We must remember, especially, however, the demonstration of the action of germs in the production of disease, the introduction of antiseptic surgery by Lister, through the application of these discoveries, the discovery of bacterial vaccines, and their application in chicken cholera, anthrax, rabies and other diseases.

In view of the debt owed to Pasteur by the world, and particularly by those interested in public health, this Association desires to render its homage to the memory of this great scientist and man, as one of the very greatest benefactors to the human race who has yet lived.

The President is requested to publish these resolutions, to spread them upon our minutes, and to send a copy to the director of the Pasteur Institute in Paris.

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10. IN MEMORIAM

RESOLVED that the American Public Health Association record its admiration and respect for the past services to the cause of public health given by the following members of our Association, and its full appreciation of the loss sustained by the public and our profession in their deaths.

Alexander R. Craig, M. D., Chicago, Ill.
John F. Croston, M. D., Haverhill, Mass.
John A. Graham, Brandentown, Fla.
Wm. Horace Hoskins, D. V. S., New York, N. Y.
D. K. Jones, M. D., Wooster, Ohio.
Walter Lindley, M. D., Los Angeles, Calif.
Preston B. Loftin, M. D., Beaufort, N. C.
Sherman Lull, M. D., Waubay, S. Dak.
Charles R. Mahady, M. D., Rome, N. Y.
J. H. McCormack, M. D. Louisville, Ky.
Jules Schevitz, Oklahoma City, Okla.
Stephen Smith, M. D., Montour Falls, N. Y.
Frederick Angier Spafford, M. D., Flandreau, S. Dak.
E. B. Starr, M. D., Columbus, Ohio.
Bingham Stone, M. D., Burlington, Vt.
James G. Turner, M. D., Houghton, Mich.
Solomon Wolff, New Orleans, La.
Francisco Xavier, L. M., Cebu, P. I.

LIST OF MEMBERS

Proposed for election to the A. P. H. A. October 1 to October 31, inclusive

Names of Sponsors are set in **Bold Face Type**
Names of Members are set in Light Face Type

CANADA

E. Pelletier, M.D., Montreal, Quebec.
Alphonse Lessard, M.D., Montreal, Director Prov. Bureau of Health, Quebec.

Mac H. McCready, Montreal, Quebec.
Mr. James O. Meadows, Montreal Sanitary Engineer, Quebec.

Dr. John A. Amyot, C.M.G., M.T.P.I.C., Ottawa, Ontario.
B. Evan Parry, M.R.A.I.C., Ottawa, Supervising Architect, Dept. of Health, Ontario.

CONNECTICUT

Miss Janet Ottley, Bridgeport, Conn.
Margaret R. Burkhardt, M.A., Visiting Nurse Assn., Bridgeport, Conn.

Stanley H. Osborn, M.D., Hartford, Conn.
Daniel E. Shea, M.D., Hartford. Chief Div. of Venereal Diseases. Conn.

ILLINOIS

Isaac D. Rawlings, Springfield, Ill.
N. G. Short, M.D., City Hall, Chicago. Asst. Bureau Chief, Bureau of Medical Inspection, Ill.

INDIANA

A. W. Hedrich, New York, N. Y.
Wm. F. King, M.D., State House, Indianapolis, Ind. State Health Commissioner.

IOWA

Don M. Griswold, M.D., Iowa City, Ia.
Rodney P. Fagan, M.D., Des Moines. Secretary State Board of Health, Ia.

KENTUCKY

A. T. McCormack, M.D., Louisville, Ky.
Elmira W. Beers, R.N., Louisville. Supt. Public Health Nursing Assn., Ky.

MASSACHUSETTS

Prof. George C. Whipple, Cambridge, Mass.
Miss Gertrude C. Spitz, A.B., Brookline, Mass. Food Clinician, Boston Dispensary.

Mr. A. G. Long, Indianapolis, Ind.
Evald Tomanek, M.D., Brookline. (Health Officer in Czecho-Slovakia), Mass.

Fred S. Dodson, Framingham, Mass.

Oscar A. Dudley, M.D., Worcester, Mass. State District Health Officer.

MEXICO

A. Brioso Vasconcelos, M.D., Mexico City.
Alberto Oviedo Mota, M.D., Morelio Michocan, Mexico.

E. C. Houle, M.D., Empalme, Sonora. Chief Surgeon S. P. de M. Railroad, Mexico.

Gilberto Cicero, M.D., Tamaulipas, Mexico.

Juan Solorzano Morfin, M.D., Vera Cruz. Dept. of Public Health, Mexico.

Alphonso R. Ochoa, M.D., Mexico, D. F.

MINNESOTA

E. J. Huenekens, Minneapolis, Minn.
Mabel S. Ulrich, M.D., Minneapolis. Exec. Secy. Hennepin Co. Public Health Assn., Minn.

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E. H. Bullock, M.D., Kansas City, Mo.
Mr. J. O. Wade, Kansas City. Member of the Board of Health, Mo.

Mr. W. Thurber Fales, Baltimore, Md.
F. E. Coughlin, M.D., Kennett. County Health Officer, Mo.

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Mr. Samuel G. Sharwell, Newark. Chief Food and Drug Inspection, N. J.

J. Nevin, M.D., Jersey City, N. J.

Ella M. Brede, R.N., Jersey City, N. J. Supt of Public Health Nurses.

Anna A. Ewing, Brooklyn, N. Y.
Elsie Brehaut, R.N., Red Bank. Monmouth Co. Organization for Social Service, N. J.

NEW YORK

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L. T. Genung, M.D., Ithaca Health Officer N Y.

Miss Florence Johnson, New York, N. Y.
Muriel P. Hall, R.N., New York, N. Y.

W. F. Snow, M.D., New York, N. Y.
H. E. Kleinschmidt, M.D., New York. Secy. American Social Hygiene Assn., N. Y.

D. B. Armstrong, M.D., New York, N. Y.
Frank C. Lewis, M.D., Scarborough. Pres. American Medical Editors' Assn., N. Y.

E. Vandervoort, New York. Secy-Treas., American Medical Editors' Assn., N. Y.

Alec N. Thomson, M.D., New York. Committee on Dispensary Development, N. Y.

Mrs. S. D. Hanshue, New York, N. Y.
Mr. Harry C. Lyon, New York, N. Y.

Miss Sally Lucas Jean, New York, N. Y.
Lulu Hunt Peters, M.D., New York, N. Y. Writer Public Health Articles.

Prof. C. E. Turner, Cambridge, Mass.
James Wallace, M.D., C.P.H., New York, N. Y. International Health Board.

Mr. John F. Skinner, Rochester, N. Y.
Mr. Michael J. Blew, Rochester, N. Y.

OHIO

Frank G. Boudreau, M.D., Columbus, O.
Roy K. Evans, M.D., Ada. Health Commissioner (part time), O.

Mr. R. H. Patterson, Columbus, O.
W. P. Brown, M.D., Cleveland. Tuberculosis Specialist, O.

Cleveland Acadamey of Medicine, Cleveland, O.

H. J. Knapp, M.D., Cleveland, O.
Roy F. Leslie, D.V.M., Cleveland. Chief Bureau Food and Drug Inspection, Cleveland Health Dept, O.

E. A. Peterson, Cleveland, O.
Mr. E. R. Miller, City Hall, Cleveland. Bacteriologist, O.

Emerson Megrail, M.D., Cleveland, O.
Edward Spease, B.S., Cleveland. Dean School of Pharmacy, Western Reserve University, O.

Ralph B. Tate, M.D., Cincinnati, O.
Frank G. Boudreau, M.D., Columbus. State Epidemiologist, O.

Elgie R. Shaffer, M.D., Columbus. District Supervisor State Dept. of Health, O.

Mrs. S. D. Hanshue, New York, N. Y.
Walter S. Weis, M.D., Jefferson. Commissioner of Health, Ashtabula Co., O.

H. L. Rockwood, M.D., Cleveland, O.
Wallace J. Benner, Lakewood. Health Commissioner.

PENNSYLVANIA

E. Routzahn, New York, N. Y.
Adriel W. Ely, Erie. Ex. Secy. Erie Co. Anti-Tuberculosis Society, Pa.

W. R. Batt, M.D., Harrisburg, Pa.
Edward Martin, Harrisburg. State Commissioner of Health, Pa.

VIRGINIA

E. G. Williams, M.D., Richmond, Va.
Mary Evelyn Brydon, M.D., Richmond. Director Bureau of Child Welfare, State Board of Health, Va.

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List of Mosquitoes of the United States.—The United States National Museum has issued a bulletin (No. 2447) which has also been reprinted by the U. S. Public Health Service, giving a list of several hundred mosquitoes under their generic, sub-generic, specific and sub-specific names. with complete anatomical and structural description. The life history is given, including favorite breeding characteristics, habits of imagoes, notes as to disease-carrying potentialities and distribution over the United States with records as to state, locality, date and name of investigator reporting the specimen. A complete key is given to the tribes and genera of the mosquitoes of this country, also reference index.

An abstractor in the *Public Health Engineering Abstracts* states that "This reprint is a most valuable reference work to one engaged in mosquito control or research work, particularly to those maintaining a laboratory and specializing on differentiation of species." (J. A. T.)

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 10th of each month for publication on the 20th. Mail to New York office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in New York City. In replying give age, professional training, salary requirements, previous positions held and three or more references.

Wanted: By a commercial laboratory near Chicago, an energetic young man, college graduate preferred, whose training has qualified him to do bacteriological work. This is an exceptional opportunity for the right man. Address 505 H. C. R., care of this JOURNAL, New York address.

Wanted: Superintendent in office of an anti-tuberculosis league in a middle western city. Salary $3,000 per year or more for the right man. Address 504 S. M. M., care of this JOURNAL, New York address.

Wanted: A young man with a degree in medicine, with good personality, and who has the fundamental knowledge of communicable diseases, their methods of treatment, and methods of prevention and control, to take charge of the epidemiological work of a state health department in the middle west. Salary, $3,000 per year. Address 506 K. F. W., care of this JOURNAL, New York address.

Wanted: Competent editor for health journal. State age, experience and salary expected. Give full details in first letter. Address 507 A. B. C., care of this JOURNAL, New York address.

POSITIONS WANTED

Positions wanted announcements will be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 10th of the month.

Wanted: Position by clinical pathologist and bacteriologist. Ph.D. with ten years' experience. Government as well as private references. Address 233 N. C., care of this JOURNAL, New York address.

Wanted: Position as city or county full-time health officer by physician, college training, two years internship, two years government health work; post-graduate work Chicago, two years general practice. Excellent references. Minimum salary, $2,400. Address 232 K. R. G., care of this JOURNAL, New York address.

Wanted: Position in health department. Man aged 34 years, married, three years' experience as local health officer and six months experience in sanitary work in Army, desires to make change. Holds M. D. degree, 1910. Good references. Salary must be at least $3,500. Address 234 F. L., care of this JOURNAL, New York address.

Wanted: Health officer of prominent city near New York, wishes position in commercial or industrial field. Holds degree from recognized school of public health. Ex-member of U. S. Public Health Service. Good executive, experience in writing and public speaking. Wide acquaintance among health workers and sanitary engineers. Address 235 A. S. B., care of this JOURNAL, New York address.

Wanted: Position in health department of some state, county, city or industrial concern by an experienced health officer. Age 43. References exchanged. Address 236 O. G. J., care of this JOURNAL, New York address.

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Household Filters for Water Supply.—If a public water supply is properly handled so that it is sanitary and of satisfactory physical appearance, there is no need for household purification devices, according to M. W. Cowles of the Illinois Department of Health. He outlines and describes various kinds of household and commercial mechanical filters, illustrating various types with photographs. *Health,* May, 1922. (J. A. T.)

BOOKS AND REPORTS REVIEWED

The Story of Drugs. *Henry C. Fuller. New York: The Century Co., 1922. Pp. 349, illustrations and index. Price, $3.00.*

This is the fourth volume of a series of books intended for popular information reading, entitled "The Century Books of Useful Science." The three preceding were: *Creative Chemistry* by Edwin F. Slosson; *Artificial Light* by M. Luckiesh, and *The New Stone Age* by Harrison E. Howe.

This is the first attempt in popular scientific literature to give information to the public relating to the preparation of medicines on the large scale. The chapter headings are illuminating as to the scope of the work and are as follows:

1. What drugs are and where they come from.
2. Beginnings and accomplishments of the medicine industry.
3. How medicines are made.
4. The rôle of alcohol.
5. Farming for medicine.
6. Patent medicines: Their place in the economy of the nation.
7. Nature's gift to mankind.
8. Vaccines and serum therapy.
9. In the spirit world of medicine: Vitamines.
10. Dope and not dope.
11. Self medication: The family medicine chest.
12. Paint, powder and rouge: The height of the complexion.
13. Hay fever: The malady of strenuous America.
14. Legislation and its effect on the drug business.

The author has had years of experience as a pharmaceutical chemist which has brought him into close touch with almost every phase of the industry and he has a facility of expression and a gift of making clear explanations of scientific subjects which makes of his initial effort in literature a very readable volume.

More than thirty full-page plates on highly calendered paper, each plate usually containing several illustrations, add very much to the attractiveness and instructive character of the book.

The only criticism of the book is found in the fact that the author leans too much on the side in favor of the proprietary medicine industry in his chapters on patent medicines and self medication; and, in his selection of a list of remedies suggested for the "Family Medicine Chest or Household Armamentarium" he has even ventured to include some proprietary remedies which have been the subject of particular criticism by the American Medical Association.

In spite of this defect, the book deserves a place in every complete library and it can be read with interest and profit by the professional man as well as by the layman.

CHARLES H. LAWALL.

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Toward Racial Health. *Norah H. March. New York: E. P. Dutton Company, 1919. Revised American Edition. Pp. 326. Price, $2.00.*

This is a book on methods in sex education, rather than on racial health, the connection between the two being rather loosely established thus: "How, then, are we to teach and train the boys and girls of this generation in order that they may become, worthily, fathers and mothers of the next!"* The chief emphasis of the book is on the use of nature study and biology material as a basis for sex instruction, although there are excellent chapters on the physical and mental development and care of the child, on ethical training and on education for parenthood. One welcomes the author's advice about supporting the home task of sex education by utilizing outside agencies that make contacts with the child. One objects to certain minor features, an occasional confusion of sex education with sex hygiene, the purposiveness of nature, a vagueness about methods for handling the problem of masturbation, too long paragraphs.

The viewpoint is sane. The book is stored with suggestions for parents and teachers, though in places the phraseology is rather heavy for the ordinary parent, and the lack of paragraph and section headings does not clarify it for reference. But in general, Miss March has made a distinctly valuable contribution to the subject of sex education.

*Page 3.

NEWELL EDSON.

The Evolution of Modern Medicine. *Sir William Osler. The Yale University Press, 1921. Pp. 243. Price, $7.00.*

The only way to review some books is to read from cover to cover. This is such a book. In it Sir William Osler has accomplished for medicine what H. G. Wells has recently done for history, so far as creating an intensely interesting story of human progress is concerned, and more than this Dr. Osler has provided an invaluable and accurate reference book on the high points in medical advance since the beginning of written records. The book is profusely illustrated and should serve admirably as a text book for a course on the history of medicine which ought to be given in every medical school.

The author traces the origin of medicine through its earliest beginnings in magic, incantations, malign influences, and early Egyptian teachings. The ancient practices of the Assyrians and Babylonians, the Chinese, and the Hebrews are made to lead up to the Greeks and the development of hygiene and what may be termed the philosophy of medicine; all of this being delightfully interwoven with the current political and social history of the times in a manner for which Dr. Osler was famous.

The growth of the great schools of medical thought in the Middle Ages, the struggle between the beginnings of science and the influences of astrology and divination, the story of the church and medicine and the final rise and development of modern medicine, are written clearly and briefly, yet with a wealth of references and quotation from extensive treatises on medical history.

All through the text one finds biographic sketches that picture men and their times vividly—Hippocrates, Galen, Paracelsus, Vesalius, Harvey, Sydenham, Hunter, Pasteur, Koch, Lister, Reed, Manson, Ross, Gorgas—and the index of personal names is the best evidence that all the great names of medical history have been included.

The members of the American Public Health Association will be particularly interested in the emphasis which the author gives to health conservation, especially in the concluding chapters on the rise of preventive medicine and sanitation, and in the stories of yellow fever, of malaria, and of the epoch-making discoveries of Jenner, Pasteur, Koch, Lister and others.

All those who knew Dr. Osler as teacher and philosopher will recognize the following quotations from his introductory chapter, as typical of his kindly, humorous way of holding his audience and stimulating thought: "Sail to the Pacific with some Ancient Mariner, and traverse day by day that silent sea until you reach a region never before furrowed by keel, where a tiny island, a mere speck on the vast ocean, an atoll, a mimic earth, fringed with life, built up through countless ages by life on the remains of life that has passed away. And now, with wings of fancy, join Ianthe in the magic car of Shelley, pass the eternal gates of the flaming ramparts of the world and see his vision: . . . . And somewhere . . . . amid the mighty globes would be seen a tiny speck 'earth's distant orb,' one of the smallest lights that 'twinkle in the heavens.' . . . . And as the little coral reef out of a vast depth had been built up by generations of polyzoa, so she would see that on the earth, through illimitable ages, successive generations of animals and plants had left in stone their imperishable records: and at the top of the series she would meet the thinking, breathing creature known as man. Infinitely little as is the architect of the atoll in proportion to the earth on which it rests, the polyzoon, I doubt not, is much larger relatively than is man in proportion to the vast systems of the universe, in which he represents the ultra-microscopic atom less ten thousand times than the tiniest of the 'gay motes that people the sunbeams.' Yet with colossal audacity, this thinking atom regards himself as the anthropocentric pivot around which revolve the eternal purposes of the universe. Knowing not whence he came, why he is here, or whither he is going, man feels himself of supreme importance, and certainly is of interest—to himself. Let us hope that he has indeed a potency and importance out of all proportion to his somatic insignificance. . . . May not man be the radium of the universe? At any rate, let us not worry about his size. For us he is a very potent creature, full of interest, whose mundane story we are only beginning to unravel. Civilization is but a filmy fringe on the history of man. Go back as far as his records carry us and the story written on stone is of yesterday in comparison with the vast epochs of time which modern studies demand for his life on earth. . . . This has to be borne in mind in connection with the

present mental status of man, particularly in his outlook upon nature. . . . Modern anthropologists claim that both religion and medicine took origin in magic . . . . "

The book is issued as one of a series of publications under the Silliman Foundation of Yale College. It is based on Sir William Osler's lectures on the Evolution of Medicine delivered at Yale University in 1913, and partially revised by the author just before his death. Dr. Osler himself characterized these lectures as "an aëroplane flight over the progress of medicine through the ages." In issuing this volume the Yale Press has rendered a notable service to the medical profession and provided another fitting tribute to one of the greatest minds in the history of medicine.

WILLIAM F. SNOW, M. D.

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Biology of Sex. *T. W. Galloway, Ph.D., Associate Director of Educational Activities, American Social Hygiene Association. New York: D. C. Heath & Co., 1922. Second Edition. Pp. 149. Price, $1.24.*

The question of sex education has received much attention since the first issue of this book appeared in 1913; and the subject of sex, stripped of much of the prudery that formerly surrounded it, is beginning to take its place along with other subjects of vital importance in the education of the young. Unfortunately, "sex education" was approached from the side of the abnormal and perverse; the present book does much to rectify this approach. Much has been learned in the last few years of the relation of sex to mental life, and the chapter dealing with this subject has, therefore, been amplified. This, with the other additions and minor changes throughout the text, especially of the chapter on eugenics, brings the present edition abreast of current thought. An entirely new chapter has been added on "The Central Place of the Home and Family."

If it is still considered necessary to justify proper sex education, it is unfortunate that more convincing statistics than those presented in Chapter II, "An Investigation," were not offered. If sex education must forever rest on the slim basis of the answers to six questions given nine or ten years ago by 166 college students, we are, indeed, in a bad way.

This book is addressed to parents and teachers, and these will find the last two chapters, dealing with methods of instruction, particularly helpful. H. N. C.

State Medicine a Menace to Democracy. *H. B. Anderson, Secretary-Treasurer of the Citizens Medical Reference Bureau, New York, 1920. Pp. 115. Price, $1.50.*

In the foreword the author states the purpose of this book to be "to meet the needs of legislators, social workers, health officers, teachers, lawyers, clergymen, authors, editors and others interested in the promotion of public health." All of the arguments in the book, however, are clearly intended to restrict the development of public-health activity, to oppose state regulation of medical practice, and to throw the practice of medicine open to the various cults that are fighting for recognition.

The author adopts the very interesting method of developing his own case of quoting the writings of his opponents. More than half of the volume consists of quotations from such individuals as Victor C. Vaughan, W. C. Rucker, Frederick R. Green, George A. Soper, etc. Quite naturally, every one of these has some criticism of the present methods of medical practice and of public-health administration. By bringing all of these together, the author endeavors to give the impression that the leaders in the public-health and medical movements are as a group quite out of sympathy with the trend of those movements. For example, he quotes Gorgas as saying: "Poverty is the greatest of all breeders of disease, and a stone wall against which every sanitarian must impinge." The author then points out that appropriations for "alleged public-health purposes" are futile.

One of the pet claims of the author is that public health is meddling with private practice of medicine, while neglecting sanitary engineering and the control of the environment, which ought to be the first concern of the health official.

The germ theory of disease is attacked through a quotation from Hodge (reprint from the *Daily Cataract Journal* of July 22, 1905): "Many of the most advanced thinkers in the medical profession, both in this country and abroad, are frank in the expression of their conviction that the germ theory has no scientific basis upon which to rest its claim. It is a mere fantasy of fussy microscopists who know little or nothing of the real nature of disease." (Page 51.)

On page 84 the author quotes Pitcairn of the Pennsylvania State Vaccination Commission, to the effect that in the Spanish-Amer-

ican war, as shown by the practice of army surgeons, six weeks was considered the limit of immunity conferred by smallpox vaccination.

Nonsense of this type will quickly condemn the volume in the eyes of any one who is at all informed upon public-health or medical matters. The laity, however, are more likely to be misinformed by this book. A. W. H.

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Applied Chemistry. *Fredus N. Peters, Ph.D. Instructor in Chemistry in Central High School, Kansas City, Mo. St. Louis: C. V. Mosby Company, 1922. Pp. 461. Illustration 72. Price, $3.50.*

This is a student text-book presenting chemistry—always considered a "hard" subject in the high school curriculum—in a very digestible form. One will readily note that its author has a deep appreciation of the practical aspect of chemistry coupled with an extensive experience as a teacher. Each of the 37 chapters begins with an "Outline" and concludes with "Exercises for Review." The chapters cover systematically the basic laws of reactions as well as the various elements and derivatives with reference to their occurrence in nature and utilization in manufacturing processes. I feel certain that the text-book merits a favorable reception in high-school circles and in many technical institutions. The only criticism which one could make is that the text is printed on glazed paper which makes reading in artificial light difficult.

ARTHUR LEDERER, M. D.

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PUBLIC HEALTH NOTES

Abstracted by D. GREENE, M. D., JAMES E. TOBEY, LL.B., HOMER N. CALVER and MAYO TOLMAN.

The Treatment of Hereditary Syphilis.—The study reported was undertaken with the purpose in view of determining whether or not the end-results of the intensive work with hereditary syphilis during the period 1912-1920 were of such a nature that future work along the same line is indicated or justified. During this period 443 patients with the disease were observed and followed with adequate hospital, clinic, and social service facilities available at all times. From the social standpoint it was found that the group as a whole was unsatisfactory and difficult to deal with. Lack of interest on the part of parents led á large number of the cases to discontinue treatment long before dismissal by the physician. In spite of thorough and intensive follow-up work, only a third of the hereditary syphilitic patients were given the benefit of a satisfactory course of treatment, and the authors question whether this figure can be improved under ordinary conditions.

Concerning the results of medical treatment, two viewpoints must be considered, first, the results of treatment in the individual case, and second, the results of treatment for the group of 443 cases as a whole. So far as the individual case is concerned, the results show that a given case has a fair chance of clinical and serological recovery or improvement when adequate treatment is provided early. If the given case has either serological or clinical evidence of involvement of the central nervous system, the chances for recovery or improvements are poor. As regards the group as a whole, the results have been disappointing. In a group of 308 cases whose end-results are known, the following figures are given: cured or recovered 67, or 22 per cent; improved 108, or 35 per cent; unimproved 55, or 17 per cent; died 78, or 25 per cent. Thus in the entire group, regardless of the amount of treatment received, 43 per cent were either unimproved or died. The group results show that from a social or group standpoint the treatment of hereditary syphilis in the infant or child leaves much to be desired. The problem is best attacked by reaching the syphilitic woman or mother before and during pregnancy. "While by no means advocating the neglect of the syphilitic child, we feel that the results to be obtained are so poor as a whole that our efforts should be directed much more to the prenatal clinic

than to the pediatric clinic, and that the only satisfactory solution of the problem of hereditary syphilis is its prevention rather than its cure."—P. J. White and B. Veeder, *Amer. Jour. of Syphilis,* July, 1922, 353 (D. G.).

✠

A New Instrument for Sampling Aerial Dust.—An ingenious yet simple apparatus for sampling aerial dust has been devised by the authors. This instrument makes use of the principle of impingement of the dust-laden air at a high velocity on a wetted glass surface, together with that of bubbling the air through a liquid medium. The apparatus consists essentially of three parts: a hand pump or electrically driven blower; a flow meter, or other suitable means of measuring the air passed through the instrument, and the dust collecting device. The dust collector consists of a flat-bottomed assay flask or precipitating jar of 500 c.c. capacity provided with a two-hole rubber stopper. In one of these holes is fitted a suitable outlet tube which is connected with the flow meter, and the latter in turn is connected with the exhaust apparatus. In the second hole of the rubber stopper is placed an impinger tube (of glass) ⅝ inch in diameter and 9½ inches long. This tube is open at the upper end and is provided with a flat bottom. The bottom is pierced by 15 holes, each approximately 0.8 mm. diameter. Projecting from the bottom of the tube are three lugs each 0.8 mm. long, the purpose of which is to keep the bottom of the tube always 0.8 mm. from the bottom of the flask. Manipulation of the instrument during sampling is easy, and the analytical procedure is almost identical with that employed with the Palmer apparatus now in general use by the U. S. Public Health Service. The efficiency of the apparatus exceeds that of any of the instruments now in use.—L. Greenburg and G. W. Smith, *Repts. of Investigations, Bureau of Mines,* September, 1922 (D. G.).

✠

Epidemiology of Tuberculosis.—An inquiry made by the authors in an agricultural village shows that tuberculosis has spread from two main foci of infection. From these two foci the actual cases existing in the village and also the "contact" have arisen, with one exception, which is an independent focus and is subsiding. Infection takes two lines. It spreads in the family producing active disease; it infects also strangers or near relatives who come in less intimate contact with the infecting persons, but does not in them produce open tuberculosis. These people are relatively immune, because they are healthy adults and they do not show, up to now, the least clinical sign or symptom of active disease. The fact that offspring of these families present a negative reaction, whereas the parents present a positive reaction, has led the authors to conclude that the parents have gone through an infection but that the infection has merely led to an immunization of the individuals. From this observation they have concluded that the Pirquet reaction is a reaction of immunity. Should the parents have been infectious they would have infected their children. The condition *sine qua non* for infectivity in tuberculosis is the existence of open foci in the lungs. The expired air is the chief vehicle of infection. Of all accessory factors for the spread of tuberculosis, overcrowding seems to be the most important. In order that immunity shall arise the contact must take place at intervals, only small quantities of virus being absorbed. Under these circumstances the human organism mobilizes its defense and can cope with the infection. Practically speaking, people in intermittent contact with open cases get only a Pirquet positive but not the active disease, deriving benefit, not harm, from small doses of bacilli to which they are exposed. On the other hand, the facts brought out through this inquiry show that when the virus is absorbed continuously, as in the intimate contact of mother and child, then active tuberculosis arises.—A. Distaso and A. C. Johnson, *Tubercle,* January, 1922, 145 (D. G.).

✠

Etiology of Rickets.—The observation on the etiology of rickets reported by Chick et al. disclosed that this disease developed during winter and spring under excellent hygienic conditions in infants receiving a diet composed of fresh milk from stall-fed cows and to which sugar was added, and was prevented in children receiving a diet containing cod liver oil, more milk and less carbohydrate. Both milks were low in vitamin A content. Rickets did not develop in summer on either diet. Rickets can be cured by cod liver oil and by exposure to sunlight, or to the radiation of the mercury vapor quartz lamp. The first six months of

life is a period of special susceptibility to the onset of the disease. Rickets may develop in an infant whose general condition is good or improving, and healing of the bones may occur independently of improvement in the general condition.—H. Chick, E. J. Dalyell, M. Hume, H. M. M. Mackay and H. H. Smith, *Lancet,* July 1, 1922, 7 (D. G.).

✠

Municipal Homes for Open Cases of Tuberculosis.—The author feels that the solution of the problem of the open case of the tuberculosis is in an institution that will have to accept full responsibility for the positive sputum case outside the sanatorium. Such a community house is the missing link in the chain of defense against tuberculosis. It joins up the sanatorium and the far advanced hospital; so that the open case is under constant supervision from the time he leaves the sanatorium till he goes to the far advanced hospital in case he loses his fight, or till his lesion heals.—E. P. Troy, *Medical Officer,* Sept. 30, 1922, 147 (D. G.).

✠

Inspection of Canned Foods.—A report recently issued (Food Investigation Board Special Report No. 10, "Inspection of Canned Foods," H. M. Stationary Office) deals with imported marine products. The methods of inspection at the ports are similar to those used in the case of meat products, namely, inspection, palpation, percussion and auscultation. As with the meat tins, 10 per cent are examined, and if the proportion of rejects is considerable the whole consignment is held up for more detailed examination. The results of inspection show definitely blown, badly damaged, or rusty tins. Palpation is of considerable help in this work of inspection as the ordinary round can gives a firm feel and no "give" is exhibited; in case of the thin walled cans with flat surfaces (such as are used for herrings and sardines) a slightly springy condition may be met with, and would be passed by most inspectors. Percussion seems to be of comparatively little use for marine products and was not systematically employed, but great stress was laid upon shaking. With this method many difficulties are encountered as the sound varies considerably; with a high grade of salmon packed in round tins, the shake sound somewhat resembles a thud, but with a low grade product the fish is more broken up and a loose note predominates.

The reliability of such methods of examination was judged by a comparison of the findings of expert examiners, with the actual physical condition of the fish when opened and the results of bacteriological and chemical examination. The figures given show that tins rejected as unmistakably blown are nearly always unfit or contain bacteria; they would all have to be condemned, and no difficulty arises as regards tins showing definite signs of internal pressure. Other grounds for rejection are usually an abnormal shake sound and a springy condition of the tins; with these the judgment is not universally right and the percentage of correct rejections varies considerably. Thus the present methods result in the rejection of many sound samples, but it is difficult to make practical suggestions which will lessen these rejections and yet leave no loophole for unfit samples to pass.—*Medical Officer,* Sept. 30, 1922, 145 (D. G.).

✠

School Clinic Records.—A system of clinic record keeping is described which has the following features: The person doing the booking wastes as little time as possible in writing; the nurse doing the dressings has no writing at all to do; any child's card is quickly obtainable; in the event of the booker being called away, another person can straightway carry on without confusion or delay; the medical officer is enabled to work without distraction, and the work of the nurse is not hindered in waiting for him, nor are parents and children detained longer than is necessary.—C. S. Harwood, *Medical Officer,* Aug. 19, 1922, 75 (D. G.).

✠

Treatment of Leprosy With Chaulmoogra Oil.—Those who have had extensive experience with leprosy are of the opinion that at present the treatment with the esters of chaulmoogra oil is the best. From bacteriological studies and from clinical symptoms this method of treatment will cure the early cases, especially in young subjects. The advanced cases certainly improve in time, and it is possible that many of these will be cured after years of treatment. Isolation of advanced cases of leprosy in one leprosarium in Louisiana is an excellent plan. Under government control and supervision these patients will receive much better treat-

ment than when they were scattered in isolated county hospitals throughout the United States.—H. Morrow, E. L. Walker and H. E. Miller, *Jour. Amer. Med. Assn.,* Aug. 5, 1922, 434 (D. G.).

✠

A Test for Diphtheria Immunity and Susceptibility.—In the test devised by the author, a predetermined strength of toxin is mixed with an equal volume of blood serum from the person to be tested, the mixture allowed to stand for half an hour at room temperature, and then 0.2 c.c. of the mixture is injected intracutaneously into the shaved skin of a white guinea pig. The extreme delicacy of reaction in this test, plus the fact that the guinea-pig is never sensitive to the proteins of diphtheria toxin, mean that the test is clear cut, certain and free from confusing pseudoreactions. The test is performed in the laboratory, blood specimens being sent in as for the Widal test.—W. H. Kellogg, *Jour. Amer. Med. Assn.,* June 10, 1922, 1782 (D. G.).

✠

An Indictment of the Mouse.—In his recent presidential address to the British Medical Association at Glasgow, Sir William Macewen urged the need for a close study of comparative anatomy and physiology for elucidation of problems affecting the health of man. He continued: "It is not necessary to go far afield to begin such study. The lion, the elephant, and the duck-billed platypus are of great interest in themselves; but who knows about the fauna and flora of the dermal coverings and hirsute appendages of the ubiquitous mouse, which perseveringly installs itself in and near the haunts of man, and even penetrates the family circle? What man thinks of the mouse may be summed up in the form of means of destruction—traps, gins, cats! What the mouse thinks of man would not flatter his vanity. The mouse regards man as an impotent animal who issues threats of destruction, and makes the most clumsy, short-lived attempts to carry them out; as a pusillanimous antagonist, a creature who for centuries has waged war on mice—with no effect! They are still as numerous, as bold, as intelligent, as agile, as beautiful, and as destructive as ever! The 'wee sleekit cowrin' tim'rous beastie' to this day pursues the even tenor of his way. No other animal has such opportunity of carrying disease into the domestic hearth. Mice of one kind or other attend the harvesting of grain in the field, follow it to the corn-rick or barn, infest the stores, mills, or bakeries, and are ready to attack the flour when made into bread. They go over the cots of children, diseased or healthy; they run from house to house; they lick every used plate, cup, or saucer on which there is a particle of sugar or crumb of bread. The mouse is a carrier of disease—but what are its pathological records? Is it subject to contagious diseases, and if so how does it disseminate them? Is it attacked by sarcoma or cancer, allied to that which attacks man?" Sir William added that even for the protection of humanity, apart from the intrinsic interest of the study, the mouse and its ways are worthy of the searchlight of scientific investigation.—*Medical Officer,* Aug. 19, 1922, 81 (D. G.).

✠

Directory of Child-Health Agencies.—A comprehensive directory of 861 local child health agencies in the United States has just been issued by the U. S. Department of Labor through the Children's Bureau. These agencies are actively engaged in the promotion of child health through maternity care, infant care and the care of the child of pre-school age. They serve states, counties and urban areas of 10,000 or more inhabitants. The material was obtained by means of a questionnaire which called for the name of the organization, the address, the name of the executive, the number of paid and volunteer workers and the scope of work.

For convenience in consultation, the directory includes a list of agencies arranged by state and city; an alphabetical list by states of agencies serving state-wide, county and urban areas; and a classification of agencies according to whether they provide maternity care, infant care and the care of children of pre-school age.

✠

Power of New York State Health Commissioner to Regulate the Practice of Midwifery Upheld.—The Appellate Division of the Supreme Court of New York rendered an opinion in the September term which sustains the discretionary power of the Commissioner of Health to issue and withhold annual licenses for midwives as provided in the state law and the state sanitary code. The decision, given in the case of Maria

Barresi vs. the State Commissioner of Health, reversed the order of a lower court which had granted a writ of mandamus compelling the issuance of the license. The facts in the case are as follows:

The midwife, practicing in Utica, had been graduated from a recognized school in Italy and had been duly licensed by the State Commissioner of Health in October, 1920. From the first, however, her practice in this country had been irregular, and finally the department obtained a report that she had committed an abortion. Consequently, when her license expired at the end of 1921, it was not renewed. Thereupon, the midwife brought suit to compel the issue of the license.

In commenting on this case, Justice Hinman made the following statement: "At the time the application for license was passed upon, the Commissioner had before him official reports from the inspectors of his Department relating to the conduct of the relator. These reports were a part of his official files. The substance of these reports was such that the action of the Commissioner was not only justifiable but it would have been grossly improper for him to have granted the license in the absence of at least a denial or satisfactory explanation of the conduct criticized by his inspectors. The Legislature has invested the Public Health Council and the State Commissioner of Health with authority to regulate the practice of midwifery. The State Commissioner of Health has been invested with authority to pass upon the technical qualifications of the applicants and also upon the character of the applicants. In this case, he was not satisfied as to the moral fitness of the applicant."

Justice Kellogg, who delivered the opinion, made the following remarks in the course of it: "Certainly if the public good demands that administrative officers be vested with plenary power to determine the fitness of applicants to conduct taverns, to give theatrical entertainments, to conduct auctions, to practice osteopathy, to become policemen and superintendents of public works, then the discretion of the State Commissioner of Health to reject as unfit an applicant for a license to practice midwifery, a profession which offers convenient opportunity for criminal practices, ought also to be plenary and free from judicial review or compulsion."

While this is not the highest court in New York, this opinion is nevertheless an interesting and important one in that it upholds the discretionary powers of administrative officers who are empowered to issue licenses. (J. A. T.)

✣

Infant Mortality in the Birth Registration Area of the United States, 1921.—A preliminary announcement of the Department of Commerce states that for the year 1921 the birth registration area of the United States shows a birth-rate of 24.3 per 1,000 population, a record low death-rate of 11.7 per 1,000 population, and a record low infant mortality of 76. For 1920, these rates were: birth-rate, 23.7; death-rate, 13.1; and infant mortality rate, 86. The population of the birth registration area for 1921 is given as 70,425,705; the number of births, 1,714,261; the total deaths, 825,511; and deaths under 1 year of age, 129,588.

For the states in the birth registration area, the lowest 1921 infant mortality rate (51) appears for Oregon, and the highest (98) for Delaware. For cities of 100,000 population or more, the lowest infant mortality rate (50) appears for Portland, Ore., and the highest (114) for Fall River, Mass.

The Department of Commerce announces that it will soon issue a bulletin, compiled by the Bureau of the Census, showing the number of births, the birth-rates, and the infant mortality rates for the cities and states in the birth registration area for 1921, together with the figures for 1920 for comparison.—*Public Health Reports,* Oct. 13, 1922 (J. A. T.).

✣

"Tell It to the Young Men."—"Public health service, now more than ever, needs the trained abilities and devoted energies of well-equipped young graduates in medicine and engineering. The problem of how to attract enough of them into the employ of the public is endlessly discussed and never solved. Government livery remains a dubious if not a motley wear to most of the best trained men. The independence, the far greater financial rewards, the unquestioned opportunities for acquiring valuable experience, even the chance of serving idealistic ends, combine to render the private

career only too formidable a competitor of the state when the door of the technical school opens into the world of life and strife. How shall the public, ever more conscious of its need for the services of the most competent physicians and engineers, succeed in obtaining its fair share of the best young men?

"One way of making progress is to keep up the wholesome agitation for higher standards and better pay in the public service, so that trained scientific workers may be more willing and able to remain in government positions. But the government, whether in the nation, state, city, village or rural district, can never hope to compete with private enterprise in the money market. Doubtless it will always be necessary to invoke the most unselfish instincts of those about to choose a career.

"None know better than those who serve the public what unreasonable, capricious and ungrateful moods their master sometimes exhibits. But the courage of youth is commensurate with these and greater obstacles, and gloriously tends to pick a fight with fate. And there is a brighter side to the picture. Conscious pride in the decline of death-rates, in the recording of actual progress towards overcoming diseases that have long been the curse of human existence, in seeing water supplies, streets, cities and people grow progressively cleaner and better, is an emotion which the thoughtful and conscientious health officer need not be ashamed to confess. For honest and fair self-appraisal must convince even the most pessimistic sanitarian that his participation in these great struggles with the environment has meant rather more than the average contribution to the visible gains. 'Is there not a satisfaction greater than that which comes from large money earnings,' says Professor Whipple, 'in feeling that each one of us has had his little part in making the world a better place in which to live?' If so, let the older and wiser workers 'tell it to the young men,' and the state need not fear that its needs and interests will be neglected."—*Bulletin*, New York State Department of Health, September, 1922 (J. A. T.).

✠

Map-Changing Medicine.—It is expected that before long yellow fever will be banished from the face of the earth; that the hookworm disease, endemic in a zone that embraces half of the earth's population, will be driven from any community which has the will to get rid of it; and last, but not least, that malaria will be eradicated from every community with vital force left to push a thorough campaign for its extirpation. These history-making announcements are safely forecast by an examination of developments in the world-wide warfare on disease being waged by the sanitarians of the world under the leadership of such agencies and institutions as the United States Public Health Service, the health departments of the states, the British Schools of Tropical Medicine, the India Office, the Dutch Institute for Tropical Medicine and the French Institute of Colonial Medicine.

The World War served to demonstrate that the tyranny of the pathogenic or disease-producing germ can be conquered. The trenches might easily have become an inferno of infection, but preventive medicine held all communicable diseases in check effectively. When peace was declared, the truths learned during the war were carried to many lands.

No other disease is more easily cured, or is more effective in demonstration than hookworm. In the zone where hookworm is prevalent, most of the backward people of the world live, and there is some ground for deciding that the cumulative effect of this disease is responsible for such backwardness. Epson salts, a dose of thymol and another dose of salts, is followed by the elimination of scores and even hundreds of the life-sapping worms. When operating in conjunction with malaria the hookworm is doubly an evil, and both diseases reach their highest development in the same environment—the hot, damp regions of the earth. Deaths due to hookworm are higher in percentage than those traceable to almost any other disease except tuberculosis. It affects the welfare of humanity over vast and populous regions, lowering the victims' resistance to other infections, dulling the mind and sapping the strength. Its every stage is known at the present time, and methods of combating it are also known. The fact that cures are effected so quickly convinces a community that cannot see the advantages of vaccination against smallpox or the value of water purification against typhoid,

and still clings to the idea that tuberculosis is hereditary and not infectious.

Even more insidious than the hookworm is the microscopic germ which causes malaria. Malaria is affecting the lives and happiness of 800,000,000 people who dwell within the areas where it is endemic. It was Major Ronald Ross, the British army surgeon, who was finally able to pin the crime of spreading malaria on the anopheline mosquito. Through his efforts malaria was wiped out of Ismailia on the Suez Canal. Panama and a hundred other places have been largely freed from malaria by the application of his principles for control. In 1919, due to a conference composed of the United States Public Health Service, members of state boards and directors of the International Health Board, and local health authorities, at a cost of 78 cents per capita, 52 communities formerly hotbeds of malarial infection, were largely freed from the disease. This was done by simple drainage, filling pits and shallow pools, channeling streams, clearing the margins of streams and ponds, oiling, and the administration of quinine, and the use of the top minnow, a tiny fish, which is considered even more effective than oiling in the destruction of the baby mosquitoes before they reach flying age. It has been demonstrated that it costs one-fourth as much to get rid of malaria as to keep it.

Major Walter Reed and his fellow-workers demonstrated that yellow fever is a mosquito-borne disease. General Wood and Colonel Gorgas by following the principles laid down by Reed banished it from Cuba. It was also driven from Panama, Rio Janeiro and Vera Cruz, and finally from Guayquil. Dr. Hideyo Noguchi, now of the Rockefeller Institute for Medical Research, made extensive experiments in Guayquil, discovered the mosquito causing yellow fever, developed a serum for its treatment, and also a vaccine which has prevented thousands of people in disease areas from getting it.

Sanitary science is able to hold out to humanity a charter of freedom from three of the greatest scourges that have beset mankind. In all the dependencies of America and Great Britain sanitarians have carried the tidings of better health. Japan has also shown how high death-rates may be cut and well-being promoted even among illiterates. China, however, with its fifth of the population of the world, still remains for the western civilization to reach, for her agencies on these lines are as antiquated as the ox cart and pony express. Her death-rate reaches 40 per 1,000, or 13,000,000 per year. Missionaries and a few medical schools have made tremendous efforts, but all together they constituted only a drop in the bucket. A great university, the Peking Union Medical College, with its faculty recruited from the best institutions of the West, has thrown open its doors. Its aim is to develop in China an adequate corps of trained Chinese physicians and nurses and to establish thoroughly equipped hospitals.

The most productive half of the earth's surface lies in the latitudes where contagion is most rampant. As humanity expands it must look more and more to the tropics for food. Its food-producing potentialities beggar description, and the sanitarian has proved his power to break the domination of the disease germ, and so make it possible for the white man to live in safety in the tropics.—William Joseph Showalter, *National Geographic Magazine*, September, 1922, pp. 303-330.

✠

Public Health Organization.—The modern public-health movement is less than a century old, its birth being due to the studies of Louis Pasteur; its adolescence, it may be said, to the discoveries of Koch, Lister, Eberth, Gaffky, Klebs, Loeffler, Manson, Ross, Walter Reed and others, during which time causative bacteria of the more fatal infections were isolated and studied, attention focused on sick persons, and reliance laid on quarantine and disinfection. During the last ten or fifteen years there has been a radical transformation. The old obsession that infection was traceable to man's environment has been displaced by the theory that infection emanates from the individual himself, the excretion of his body and the transmission of the virus to his fellow beings by contact, direct or indirect. The sanitarian's perspective has tremendously widened.

The present-day activities deal not only with the control of communicable diseases, supervision of water supplies, sewage, housing, etc., but include infant welfare, school hygiene, public-health education, industrial

hygiene, and many other subjects of a like nature. It is predicted that before long mental hygiene will have a place in the public-health program.

Arguments have been put forward claiming that to set a pattern or standard method of procedure for health department local administration might tend to minimize the value of the personal equation in the success of such health administration, and to stifle local initiative, but, though these arguments are worthy of mature consideration, if a uniform method of procedure would render service of the highest efficiency, in a simplified way, executive health officers should be prepared to sacrifice individual ideas to the dictates of a higher and better service.

The Public Health Act of 1912, the amendments thereto, and particularly the division of the Province of Ontario into approximately equivalent units of population for purposes of greater efficiency of administration, have produced encouraging results there. The interest of the district health officer in the work of the local board had a stimulating influence on the work of the local officers, and has been the means of obtaining better salaries and more generous financial resources for carrying on the work. In the United States several states have evolved a similar plan, but with rather meager and unsatisfactory salaries provided.

There has been remarkable progress during recent years in our larger cities in the practical application of laboratory findings, and the coöperation between the various departments of research and those having contact with the general public, toward the elimination of preventable diseases.

In Ontario there are many fields of public health in which by reason of insufficient funds and imperfect organization, the urban M. P. H. is not permitted to engage except after a desultory fashion. Adequate housing of the artisan population is in its infancy, child-welfare work and school inspection are spasmodic and industrial hygiene only in an experimental stage. Venereal disease has been scarcely more than touched upon. Mental hygiene, though in some phases receiving attention, as a whole is still in the novitiate stage. If this state of affairs exists in our large cities, what shall be said of the advancement along these lines in the smaller cities? It is stated that tuberculosis is surprisingly prevalent in our farming communities. Only in the last two or three years has interest been shown in the care of babies and child welfare in the smaller towns. In population of less than 15,000 persons the expense of maintaining full-time health officers, milk inspectors and bacteriologists is out of the question. Such communities should combine with others in order to secure full-time health service.

Our universities are doing a great deal to eradicate the misconception that any graduate of a medical school is fitted to assume the duties of a health officer. He needs special training for this work, and if he must keep up a regular medical practice in order to make a living and only serve as health officer as a side issue, the importance of the work is discounted in the eyes of the public.

Given a population of from 25,000 to 50,000, for which a full-time health officer has been secured, there should be adequate revenue for the support of a health department. A laboratory is essential, giving scientific direction and insuring the coöperation of the up-to-date practitioners of the district. An epidemiologist, public-health nurses and sanitary inspectors should be provided.

In sparsely settled districts temporary hospitals might be undertaken under conditions of special stringency, and physical examination might be provided and treatment given to those in the ambulatory stages of disease, so that they might continue their accustomed calling. If treatment of disease is not attempted by the health department, except in cities where the control of municipal hospitals is placed within its jurisdiction, the sympathies of the medical profession will not be alienated. The private physician will do well to fall in line with the idea that prevention should occupy a more prominent position in his practice, and the establishment of health centers and clinics will be of aid to the private physician.

If it were possible to accomplish a consolidation of effort and uniformity of purpose among the voluntary associations, so that the whole problem of disease prevention could be surveyed in its entirety, instead of effort being exclusively focused on special fields, the net gain would be very considerable, and form an effective auxiliary to the

health department. —"Public Health Organization," James Roberts, M.D., Medical Officer of Health, Hamilton, Ontario, *The Public Health Journal,* Toronto, June, 1922. (A. J.)

✣

Proceedings of International Association of Industrial Accident Boards Issued.—The United States Bureau of Labor Statistics has issued a pamphet (Bulletin, No. 304) giving the proceedings of the eighth annual meeting of the International Association of Industrial Accident Boards and Commissions held in Chicago, September 19 to 23, 1921. Included in the subjects in this pamphlet are progress in compensation legislation, administrative problems, accident prevention, administration of accident prevention laws, court systems, rating of permanent disabilities, medical problems and administrative troubles.—(J. A. T.)

✣

M. I. T. Graduates Hold Luncheon for Mrs. W. T. Sedgwick.—A luncheon in honor of Mrs. William T. Sedgwick, the widow of the late Professor Sedgwick, was held on October 17 at the Hotel Statler, Cleveland, during the convention of the American Public Health Association. Thirty-four guests were present, including many former students of Professor Sedgwick who were attending the convention and representing the great diversity of work being performed in public-health lines by Professor Sedgwick's former students.

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The American Social Hygiene Association held its annual meeting in Cleveland October 19 and 20, following the annual meeting of the American Public Health Association. The growing interest in social hygiene was demonstrated by the large body of enthusiastic workers in attendance. The nearby states furnished the larger number of delegates, but there were many from New England, the South and the West.

The conference was opened by Dr. William F. Snow, who gave a brief history of the social-hygiene movement in the United States. Dr. Edward L. Keyes, Jr., chairman of the meeting, gave a clear description of the progress achieved and an analysis of the program's development. Dr. Haven Emerson addressed the meeting on "Social Hygiene and the Cleveland Survey," as he directed the survey carried on two years ago. He told of conditions as they were at that time and compared them with those of today, a noteworthy advance being shown. Dr. Benjamin C. Gruenberg spoke on "Education As a Factor in the Community's Health," enumerating the various agencies which should be responsible for the education of the community's youth, among them the school, the home and the church. Assistant Surgeon General C. C. Pierce of the United States Public Health Service, told of the close coöperation existing between the Service and the voluntary agencies, and Dr. William S. Keller, president of the Cincinnati Social Hygiene Society, and vice-president of the American Social Hygiene Association, testified to the value of the well-coördinated program. Protective social measures were dealt with by Miss Sabina Marshall of the Women's Protective Association, Cleveland; Mrs. Dora Sandoe Bachman, Social Hygiene Committee of Ohio League of Women Voters, and Dr. Valeria Parker, Department of Social Morality, National W. C. T. U., with discussions by representatives of various women's organizations.

The session on education was opened by the chairman, R. E. Lewis, Y. M. C. A., Cleveland. Edgar F. Van Buskirk and Dr. Max J. Exner contributed papers, which were followed by discussions. The program for 1922-23 was considered at the final session, and the conference was closed by Dr. Snow, who told of the Association's hope that those attending would give the national organization the benefits of local and state experience in order that the work in the broader field might be carried on to best advantage.

✣

Near East Relief.—Hundreds of letters are being received at National Headquarters of the Red Cross from Red Cross nurses offering their service in the relief work it has undertaken in the Near East. Until Dr. A. Ross Hill, vice-chairman, who has sailed to take charge of the work, can investigate the exact needs of the situation, however, no nurses will be sent from this side. Against possible cable requisitions for nurses, a small unit of those especially qualified is being held ready for sailing.

Recent Changes in Age-Type of Tuberculosis.—An analysis of the mortality statistics among white male wage-earners in the industrial department of the Metropolitan Life Insurance Company during the past decade shows definitely that the type of age incidence of pulmonary tuberculosis has undergone profound changes. Not only has the maximum death-rate been depressed 59 per cent in 11 years, but the age at which this maximum death-rate occurs has moved forward from 38.8 years to 44.8 years. In 1911 the maximum death-rate occurred at age 38.8 years; by 1915 it had advanced to 40.5 years; in 1918 it was located at 42.6 years, and in 1921 at 44.8 years. The forward movement of the point of maximum mortality has definite social significance. As the age ranges where the responsibility of males for the care of families of young children is greatest, the total number of deaths has been cut more than one-half. Further, the age of maximum burden has been advanced in life to a point where the father has fewer young children incapable of self-support. There is therefore a lessening of the strain upon the public and private relief agencies, and the certainty that many thousands of which they would not have had if the mortality conditions of ten years ago were in current effect.—*Statistical Bulletin,* Metropolitan Life Insurance Co., August, 1922 (*D. G.*).

✣

Health Survey of Printing Trades.—A health survey of the printing trades has been authorized by the International Joint Conference Council, representing both employers and employees. The survey is intended to cover two years and will be nation-wide.

The work will include a thorough study of printing processes in their relation to health and of printing house conditions, possibly more or less detrimental to health and life. The investigation will be carried on in coöperation with a large number of governmental, scientific, and corporate organizations, including the United States Bureau of Labor Statistics, which will have charge of the major portion of the social and economic inquiries.

A large measure of coöperation is expected from the insurance companies, but especially from Harvard Medical School, Yale Medical School, the Public Health School of Johns Hopkins University and a number of state health and labor departments.

Particular emphasis will be placed upon methods of ventilation, air-pollution, lighting, eye-strain, posture and physique.

The investigation will be made under the immediate direction of Dr. Frederick L. Hoffman, Dean of the Advanced Department of the Babson Institute, Wellesley Hills, Massachusetts, and Consulting Statistician of the Prudential Insurance Company of America.

LEGISLATION—FEDERAL

(From bi-weekly reports of the National Health Council, September 15-October 15, 1922.)

PROGRESS ON MATTERS PREVIOUSLY CONSIDERED CONGRESS ADJOURNS

The Second Session of the 67th Congress adjourned *sine die* on September 22. The Third Session will convene on December 4, 1922 and continue until March 4, 1923. It is possible that the President will call an extra session beginning about November 15, 1922, as there are many matters to come up which possibly could not be disposed of in the short session. All bills not previously acted upon go over to this session.

ANALYSIS OF THE TARIFF; ITEMS OF INTEREST TO PUBLIC HEALTH

H. R. 7456. Signed by the President, September 21, 1922. Since the tariff has now become a law, we present a summary of some of the items which affect public health. The Tariff Bill is 500 pages long and contains over 1,700 paragraphs, so that it is impractical to attempt to abstract all of it, and only the more important provisions will be given, as follows:

DUTIABLE LIST

Chemicals—In the haste to bring the bill to final passage, a compromise was effected on the dye and synthetic medicine schedules by fixing a rate of 55% on intermediates and 60% on finished products. These rates are, after two years, to be reduced to 40% and 45% respectively. The rates are based on American valuation and are in addition to a duty of 7 cents a pound in each instance. Senate rates on acids generally prevailed in the final passage of the bill. On alcohols the House rates generally prevail. They include

methanal or wood alcohol at 12 cents per gallon; ethyl for non-beverage purposes at 15 cents a gallon.

Other rates include—Antimony oxide, 2 cents per pound; tartar emetic, 6 cents per pound; rochelle salts, 5 cents a pound; balsams, copaiba, fire of Canada Peru, tolu and all other balsams, ten per cent ad valorem; barium carbonate, 1 cent a pound; barium chloride, 1¼ cents per pound; barium dioxide, 4 cents a pound; chlorinated lime, 3/10 of 1 cent a pound; caffeine, $1.50 per pound; calomel, corrosive sublimate and other mercurial preparations, 45 per cent ad valorem. (This is an advance of 30% over existing law.) Carbon tetrachloride, 2½ cents a pound; chloroform, 6 cents a pound. (The present rate is 2 cents per pound.) Casein or lactarene, 2½ cents per pound. (Casein was free of duty under the Payne-Aldrich and also Underwood Tariff laws.) Chemical compounds, salts and mixtures of bismuth, 35%. (It was free of duty in the Underwood Law.)

An important schedule which fixes the rates on chemicals, drugs, medicinal and similar substances, when imported in capsules, pills or similar forms, bears the duty of 25%, which is exactly the same rate as in the Payne-Aldrich and Underwood Laws.

Drugs, etc.—No change is made in the duty on drugs made from barks, beans, berries, herbs, roots, etc. Belladona and digitalis are changed from 10% to 25% ad valorem. Ergot is unchanged at 10% ad valorem.

Senate rates on gelatin were reduced as follows: Edible gelatin valued at less than 40c a pound, 20 per cent and 3½c a pound; valued at 40c or more a pound, 20 per cent and 7c a pound. Glycerin, refined stays at 2c per pound (the Underwood rate). Formalin, 2c a pound. The rate on crude iodin is free as in the Underwood law; but the duty on resublimed iodin is 20%, whereas it was free in the Underwood law. Bromin and bromin compounds have a duty of 10 cents per pound (free under the Underwood Law). Extracts of licorice are 25% ad valorem. (They were one cent per pound in the Underwood Law.) Citrate of lime is 7c per pound. Epsom salts, one-half cent per pound (was one-tenth of cent per pound in Underwood Law). The duty on methol is 50 cents per pound, which is the same as the Underwood Law. No change is made in the duty of one cent per pound on crude or natural camphor; the rate is advanced from 5 to 6 cents per pound on refined or synthetic camphor.

On castor oil the House rates of 3 cents per pound prevail. (This is an increase over the Underwood Law, which was 12 cents per gallon.) The rates on opium are unchanged from the Underwood Law, but cocain, ecgonin and derivatives thereof are advanced from $2 to $2.60 per ounce. Strychnin and salts 15 cents per ounce. (It was free in the Underwood Law.) Plasters, healing and curative, 20 per cent ad valorem.

Scientific Instruments—Biological, chemical, pharmaceutical and surgical instruments, 65 per cent ad valorem. Lenses, 40 per cent ad valorem. Optical glass and equipment, 45 per cent ad valorem. Microscopes, 45 per cent ad valorem. Philosophical and scientific instruments composed of metal, 40 per cent ad valorem.

Foods—About 50 paragraphs from Par. 704 on are devoted to duties on foodstuffs.

THE FREE LIST

Among the articles on the free list are:

Antitoxins, vaccines, viruses, serums and bacterins;
Barks, cinchona or other, from which quinin may be extracted;
Borax
Copper sulphate
Cyanid, potassium cynanid, sodium cyanid and all cyanid salts;
Drugs, natural and uncompounded
Leeches
Nux vomica
Phosphates, crude and apatite
Potassium chloride and nitrate
Quinin sulphate and all alkaloids and salts of alkaloids of cinchona
Radium, salts of and radioactive substitutes
Skeletons and other preparations of anatomy
Teeth, natural.

Drugs, medicines, or articles to prevent conception are prohibited from importation, along with immoral objects.

S. 3540. Fees for Examining Surgeons of the Bureau of Pensions (A. J. P. H., Oct.).—Passed Senate, September 9, 1922. Passed House, September 19, 1922. Signed by President, September 22, 1922. Examining surgeons of the Bureau of Pensions are allowed a fee of $3 for each medical examination of a claimant, and $5 where the surgeon

goes to claimant's residence to make examination.

H. R. 8062. Increasing Allowances to Totally Disabled, Blind, Legless or Armless Veterans.—Passed the Senate, September 22, 1922. Disabled soldiers in constant need of a nurse or an attendant are given $20 a month and blind soldiers are given $50 a month for attendants by the terms of this bill.

S. 2040. Compulsory Attendance of School Children, D. C. (A. J. P. H., Nov.).—This measure, which has already passed the Senate, was favorably reported with a few minor amendments to the House on September 16, 1922, by the Committee on the District of Columbia. It provides for the compulsory attendance of school children between the ages of 6 and 16 years, the taking of a school attendance, the creation of a department of school attendance and work permits and the regulation of the employment of child labor. Action upon the measure was not taken before the adjournment of Congress.

H. R. 11021. Prevention of Venereal Diseases, D. C.—Objection made to its consideration in House, September 18, 1922. This bill, which provides for the prevention of venereal diseases in the District of Columbia, although favorably reported by the Committee on the District of Columbia, has not yet been the subject of favorable legislation. On unanimous consent day in the House, September 18, 1922, it was again passed over after an objection to its consideration was made by Representative Stafford.

H. R. 11040. Authorizes Sale of Marine Hospital Reservation at Cleveland (A. J. P. H., Aug.).—Objected to in the House, September 18, 1922. The proposed legislation would give the Treasury Department authority to sell the Marine Hospital at Cleveland, using the proceeds to construct another institution. Because of the refusal of Representative Stafford to consent to the consideration of the bill unless the expenditure for a new hospital was reduced to $400,000, it was passed over on the unanimous consent calendar in the House, September 18.

PUBLIC-HEALTH BILLS PASSED BY CONGRESS AND SIGNED BY THE PRESIDENT, SEPTEMBER 22, 1922.

H. R. 9528 providing for the retention by the government of property in Nome, Alaska, known as Detention Hospital Building, and its use by the Bureau of Education. (A. J. P. H., Nov.)

H. R. 11589 providing for transfer of lands and buildings of Federal Leprosy Investigation Station at Kalawao, on island of Molokai, in Territory of Hawaii to the Territory of Hawaii.

NEW MATTERS (NOT PREVIOUSLY CONSIDERED)

H. R. 12730. Use of Government Hospitals for Civilian Government-Employees Suffering with Tuberculosis.—Introduced by Congressman Gorman, September 20, 1922. Referred to the Committee on Reform in the Civil Service. This measure provides that all civilian employees of the United States Government, either stricken or suffering with tuberculosis while in the employ of the government, shall upon application be admitted in any of the government hospitals of the United States, including institutions maintained by the Army, Navy, Marine Corps or U. S. Public Health Service.

BILLS RELATING TO CARE OF VETERANS

The following bills have been introduced regarding veterans' care:

H. Res. 423. To investigate district No. 9, St. Louis, Mo. (Sept. 18, Mr. Rhodes).

H. R. 12779. To place disabled veterans who have or may hereafter receive training on land, and creating farm loan division in Veterans' Bureau (Sept. 21, Mr. Knutson).

S. 4014. Introduced by Senator Townsend, September 20, 1922, and referred to the Committee on Finance. An amendment to the act establishing the U. S. Veterans' Bureau. It provides that a central office of the Bureau be established in the District of Columbia with fifteen regional offices and one hundred and fifty sub-offices.

H. R. 12719. Eradication of Mosquitoes in Illinois.—Introduced by Mr. Gorman, September 19, 1922. Referred to Committee on Appropriations. This bill would appropriate $50,000 to eradicate mosquitoes in the Des Plaines River Valley in Illinois.

H. R. 12704. First Deficiency Act, 1923 Fiscal Year.—Introduced in House of Representatives by Committee on Finance. Passed House September 19, 1922. Passed Senate September 21, 1922. Signed by President September 21, 1922. This measure carries small sums appropriated to make up

deficiencies in all the departments and bureaus of the government. Included are a few items of public health for U. S. Veterans' Bureau, Department of Agriculture, U. S. Public Health Service. None of the amounts is large. One hundred and fifty thousand dollars is appropriated for the fuel administrator.

H. R. 12790. Publication of Proceedings of World's Dairy Congress.—Introduced by Mr. Haugen, September 22, 1922. Referred to Committee on Agriculture. This bill authorizes publication of information presented at the World's Dairy Congress to be held in the United States, October, 1923.

H. Res. 427. Resolution Demanding Enforcement of Prohibition Act.—Introduced by Representative Ryan, September 13, 1922. Referred to the Committee on the Judiciary. This resolution states that the city of New York is overrun with prohibition officers appointed without regard to their merit or qualifications, that citizens of that city are being harassed and oppressed by these officers, that particular stress is being laid by the prohibition director on alleged enforcement of the liquor laws in New York for the purpose of advertising himself. It asks that the President of the United States be directed to enforce the statutes equally throughout the United States and not to devote its sole energies against any particular community.

H. R. 12684. Home Care for Dependent Children, D. C.—Introduced by Representative Focht, September 16, 1922. Referred to the Committee on the District of Columbia. Dependent children are to be given home care instead of being placed in public institutions, according to the terms of this measure. A similar bill was introduced in the Senate, August 8, by Senator Calder. The Focht measure is a duplicate of the Calder bill.

Post Master General Authorizes Use of Special Cancer Week Cancellation Stamps.—Dr. Hubert Work, the Post Master General, has authorized the manufacture and use of dies bearing the legend "National Cancer Week, Nov. 12-18" in the seven post offices in Colorado. This action is authorized by H. R. 10941, now a law, allowing the Postmaster General to grant such permission.

CUMULATIVE INDEX

The following index is the fifth published by the National Health Council, and covers a review of all health matters before the 67th Congress between July 15 and October 15. There are three parts: alphabetic subject index, Senate bills and resolutions in numerical order, and House bill and resolutions in numerical order. Back numbers of the National Health Legislation Bi-Weekly Summary may be obtained upon request at 20 cents a copy.

Subject Index

A

Alley Dwellings, D. C., S. 2597.
Appropriations, First deficiency, H. R. 12704.
Army personnel, H. R. 10871, H. R. 12398.

B

Brock, Dr. L. C., relief of, S. 3202.
Butter, standard, S. 3858.

C

Cancer Week, postal cancellations.
Child labor, S. J. Res. 224.
Children, dependent, D. C., S. 3898, H. R. 684.
Coal legislation, H. R. 12472.
Coroners, D. C., S. 2568.

D

Disease cures, government reward for, H. R. 12409.
Domestic animals, experiments on, H. R. 12605.

F

Fort Douglas, water and sewers, S. 3937.

G

Georgia legislation, N. H. C. No. 31, p. 8.
Government employees, retirement for disability, S. 3472, H. R. 11212.
Government reorganization, No. 31, p. 5.

H

Hospitals:
  Chaplains for, S. 3845.
  Cleveland, H. R. 11040.
  Nome, H. R. 9528.
  Veterans', No. 31, p. 4.

I

Insect extermination at Capitol, S. Res. 342. H. Con Res. 66.
Ireland, Major General M. W., No. 34, p. 8.

L

Leprosy, S. 3721, H. R. 11589, H. R. 12105.
Louisiana legislation, No. 31, p. 8.

M

Maine legislation, No. 31, p. 9.
Market news service, S. 3983, H. R. 12577.
Massachusetts, No. 31, p. 9; No. 34, p. 1.

Maternity and Infancy law, No. 34, p. 1.
Mileage tickets, S. 848.
Milk, filled, H. R. 8086.
Mosquito extermination in Illinois, H. R. 12719.
Mothers' Pensions, D. C., S. 3847.

N

Navigable waters, pollution of, S. 3968, H. J. Res. 297.
Nurses' pensions, H. R. 4.

O

Ogden, Utah, watershed, S. 3588.

P

Pensions, Bureau of. Fees for surgeons, S. 3540.
Pharmacists, pay of navy, H. R. 12275.
Physicians in Congress, No. 31, p. 1.
Prohibition enforcement, H. Res. 427.
Pure food and drugs act, amendment, S. 3974.

R

Review, No. 36, p. 2.

S

Sawyer, Brig. Gen. C. E., H. Res. 420.
Science building, D. C., S. 813.

T

Tariff bill, H. R. 7456.
Tuberculosis, hospitals for government employees, H. R. 12730.

U

Undertaking, D. C., S. 2083.
U. S. Public Health Service. New Assistant Surgeons General, No. 33, p. 4.
U. S. Veterans' Bureau, S. Res. 349, S. 4014, H. Res. 431, H. Res. 423.

V

Venereal Diseases, D. C., H. R. 11021.
Veterans, H. R. 8062, H. R. 12779.
Von Ezdorf, relief for widow of Surgeon, S. 528.

W

War risk insurance, H. R. 12517, H. R. 12555.
Waterworks, Kansas City, S. J. Res. 216.
World's Dairy Congress, H. R. 12790.

SENATE BILLS

(Note: Where date only is given, it is date of introduction. All are 1922.)

S. 528. Relief for widow of Surgeon Von Ezdorf. Passed Senate, Sept. 9.

S. 813. Closing Upper Water St., D. C., so that Science Building may be erected. Signed by President, Sept. 6.

S. 848. Authorizing issuance of interchangeable mileage tickets on railroads. Signed, Aug. 23. (A. J. P. H., Nov.)

S. 2040. Compulsory school attendance and child labor, D. C. Passed Senate, Sept. 1. Reported House, Sept. 16. (A. J. P. H., Dec.)

S. 2083. Regulation of undertaking, D. C. Passed Senate, Sept. 9. (A. J. P. H., Nov.)

S. 2568. Increase in coroners, D. C. Passed Senate, Sept. 9. (A. J. P. H., Nov.)

S. 2597. Abandonment of alley dwellings, D. C. Signed, Sept. 6. (A. J. P. H., Sept.)

S. 3202. Relief of Dr. L. C. Brock. Passed Senate, Sept. 9.

S. 3472. Retirement of disabled government employees. Passed Senate, Sept. 9. (A. J. P. H., Nov.)

S. 3540. Fees of examining surgeons, Bureau of Pensions. Signed, Sept. 22. (A. J. P. H., Dec.)

S. 3588. Protection of watershed, Ogden Utah. Reported Senate, Sept. 12. (A. J. P. H., Nov.)

S. 3721. Establishment of national leper home in Louisiana. Reported House, Sept. 6. (A. J. P. H., Nov.)

S. 3845. Authorizing U. S. Veterans' Bureau to maintain chaplains at government hospitals, July 19. Finance.

S. 3847. Mothers' pensions, D. C. July 19. District of Columbia. (A. J. P. H., Oct.)

S. 3858. Defining butter and fixing standard therefor. Reported Senate, Aug. 19. (A. J. P. H., Oct.)

S. 3898. Care of dependent children, D. C. Aug. 8. District of Columbia. (A. J. P. H., Oct.)

S. 3937. Water and sewers at Ft. Douglas, Utah. Aug. 23. Military Affairs.

S. 3968. Prevention of pollution of navigable waters. Passed Senate, Aug. 31. (A. J. P. H., Nov.)

S. 3974. Amendment to pure food and drug act. Sept. 1. Agriculture and Forestry.

S. 3983. Extension of market news service of Dept. of Agriculture. Sept. 5.

S. 4014. Amendment to U. S. Veterans' Bureau act, Sept. 20. Finance. (A. J. P. H., Dec.)

S. Res. 342. Extermination of insects at Capitol. Aug. 25. Sec. H. Con. Res. 66. (A. J. P. H., Nov.)

S. Res. 349. Investigation of U. S. Veterans' Bureau. Sept. 12. (A. J. P. H., Nov.)

S. J. Res. 216. Water supply of Kansas City. Signed Sept. 22.

S. J. Res. 224. Amendment to Constitution re child labor. July 14. Judiciary. (A. J. P. H., Oct.)

HOUSE BILLS

H. R. 4. Pensions for Nurses. Signed Sept. 1. (A. J. P. H., Oct.)

H. R. 7456. The Tariff. Signed Sept. 21. No. 32, p. 3. (A. J. P. H., Nov.)

H. R. 8062. Increasing allowances to disabled veterans. Passed Senate, Sept. 22. (A. J. P. H., Nov.)

H. R. 8086. Prohibiting shipment of filled milk in interstate commerce. Hearings, Senate, Aug. 1-7. (A. J. P. H., Oct.)

H. R. 9528. Detention hospital, Nome, Alaska. Signed Sept. 21. (A. J. P. H., Dec.)

H. R. 10871. Reduction commissioned personnel of Army. (A. J. P. H., Oct.)

H. R. 11021. Prevention of venereal disease, D. C. (A. J. P. H., Dec.)

H. R. 11040. Sale of marine hospital, Cleveland. (A. J. P. H., Aug.)

H. R. 11212. Retirement of disabled government employees. Signed, Sept. 21.

H. R. 11588. Hospitals for veterans. Signed July 1. (A. J. P. H., Aug.)

H. R. 12105. Erection of national leper home in Louisiana. (A. J. P. H., Nov.)

H. R. 11275. Pay of navy pharmacists. Aug. 15. Naval Affairs.

H. R. 12398. Increasing Army personnel. Aug. 22. Military Affairs. (A. J. P. H., Nov.)

H. R. 12409. Million dollar government reward for discovery of disease. Aug. 23. Interstate and Foreign Commerce. (A. J. P. H., Nov.)

H. R. 12472. Coal bill. Signed Sept. 21. (A. J. P. H., Nov.)

H. R. 12517 and H. R. 12555. War risk insurance.

H. R. 12577. Extension of market news service of Dept. of Agriculture. Sept. 11.

H. R. 12605. Forbids employment of noxious gases on living bodies of domestic animals. Sept. 12. Military Affairs.

H. R. 12684. Home care for dependent children, D. C. Sept. 16. District of Columbia. (A. J. P. H., Dec.)

H. R. 12704. First deficiency appropriation. Signed Sept. 21. (A. J. P. H., Dec.)

H. R. 12719. Eradication of mosquitoes in Illinois. Sept. 19. Appropriations. (A. J. P. H., Dec.)

H. R. 12730. Use of government hospitals for civilian government employees having tuberculosis. Sept. 20. Reform in the Civil Service. (A. J. P. H., Dec.)

H. R. 12779. Care of veterans. (A. J. P. H., Dec.)

H. R. 12790. Publication of proceedings of Worlds Dairy Congress. Sept. 22. Agriculture. (A. J. P. H., Dec.)

H. Res. 420. Removal of Gen. Sawyer as Chief of Coördination Section, U. S. Veteran's Bureau. Aug. 31. Interstate and Foreign Commerce. (A. J. P. H., Nov.)

H. Res. 423. Investigation of district No. 9 (St. Louis) Veterans' Bureau. Sept. 18. (A. J. P. H., Dec.)

H. Res. 427. Enforcement of prohibition act. Sept. 13. Judiciary. (A. J. P. H., Dec.)

H. Res. 431. Investigation of Veterans' Hospital in Bronx. Sept. 14.

H. J. Res. 297. Pollution of navigable waters. (A. J. P. H., Oct.)

H. Con. Res. 66. Extermination of insects at Capitol. Passed Senate, Sept. 9. (A. J. P. H., Nov.)

STATE HEALTH NOTES

GENERAL

Alabama

At the Democratic Convention in Montgomery September 7, it was recommended that the state support to the extent of its ability the activities of the Health Department. Feeling a just pride in the great achievements of this department under present and former administrations, they pledged to the Department and the people of Alabama the heartiest coöperation of the Democratic party toward the continuance and improvement of its invaluable services.

In 1917 Alabama expended for public-health work $27,000; in 1918, $43,000; in 1919 state and federal funds amounted to $80,000; in 1920 public funds amounted to $90,000 and outside sources supplied $73,000 more; in 1921 the amount expended was $218,000, and in 1922 available sums amount to $252,000. The steadily increasing appropriations from the state are due to an enactment of the legislature of 1919. Evidences of wise administration induced federal agencies to supplement state funds most generously.

Alabama has full-time health service for 31 per cent of her rural population, whereas in the United States as a whole only 8 per cent of the rural population is served by full-time health officers. She has invested money in safe water supplies, thus reducing the typhoid death-rate, and in spreading information which has reduced pellagra and malaria. There are now 14 men at work in

marshy places, draining, ditching, dynamiting, stocking with top-minnows, thus teaching the people how to prevent malaria.

Alabama has also done much in the control of the venereal diseases, having at present 12 free clinics in counties with full-time health service, and 110 coöperative clinics serving the remainder of the state. In these latter, treatments are given at a fee of $2.00 by practicing physicians, to whom the state furnishes equipment and medicines.—*Montgomery Advertiser,* September 8, 1922.

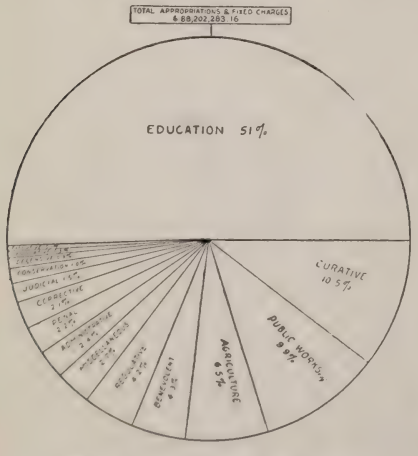
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The Alabama Child Welfare Commission has made a study of child welfare legislation with special relation to the problems presented in Alabama. An excellent summary of the various laws relating to children in Alabama has been prepared and published by the State Child Welfare Department.

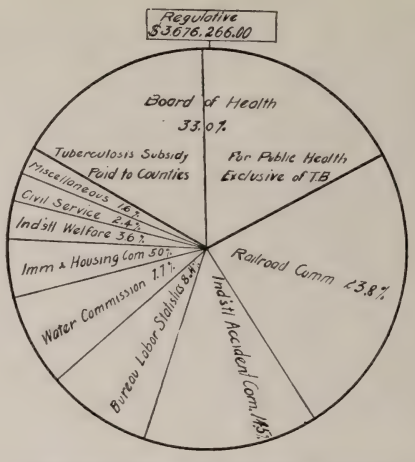
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California

The accompanying graphs are reproduced from the January, 1922, issue of *The American County.* It will be noted that 4.2 per cent of the total appropriations and fixed charges for the years 1921-23 apply to departments engaged in "regulative" work. An analysis of the expenditures of these departments is shown in the second graph. Although 33 per cent of these "regulative" appropriations are accredited to the State Board of Health, approximately one-half of



Total State Appropriations, 1921-1923.



Appropriations, "Regulative" Boards, 1921-1923.

the State Board of Health appropriation is paid directly to the counties in the form of subsidies for county tuberculosis hospitals. A very small portion of this tuberculosis appropriation is used by the State Board of Health for the administration of the tuberculosis subsidy. This amounts to 4.9 per cent of the total tuberculosis appropriation. The State Board of Health, instead of receiving direct benefit of one-third of the amount devoted to "regulative purposes," actually has at its disposal 16 per cent of the total appropriation under this title.

✠

The Public Health Center of Alameda County, established four years ago by the many health agencies at work in the county, found it necessary during the first six months of this year to employ three full-time dentists, four half-time dentists and a dental hygienist. During this period 7,862 sittings were given, which represented 5,932 school children, and covers only those children who could not afford the services of a private dentist.

✠

One of the health hazards that most health departments do not have to consider is poisoning from camp-fire smoke. The danger of exposure to smoke from a fire of poisoned oak was one of the subjects of the weekly radio talks given by the State Board of Health. Another talk was on the necessity for carrying a spade on camping trips for digging trenches to provide for the disposal of refuse.

Connecticut

The annual meeting of the New Haven County Public Health Association was held at West Haven, Conn., September 7. Dr. Charles J. Bartlett, director of the Bureau of Laboratories, Connecticut State Department of Health, gave a résumé of his recent study of the value of commercial pasteurization of milk as carried on in New Haven. His report showed that in the samples of milk examined, commercial pasteurization of milk killed all the tubercle bacilli that may have been present. The tests were carried out by animal inoculations, and control tests indicated that the raw milk samples collected contained the tubercle bacillus.

Professor E. H. Jenkins, of the Connecticut Agricultural Experiment Station, spoke on the different varieties of mosquitoes found in Connecticut and stated that the malaria-carrying Anopheles could be found in nearly every town in the state. His address was especially interesting to the health officers present, in view of the many mosquito-breeding places in Connecticut this year caused by the unusually rainy summer.

✠

Dr. O. G. Wiedman has been appointed chief of the Mental Hygiene Division of the Connecticut State Department of Health, to succeed Dr. William B. Terhune, who has resigned in order to take up similar work in Stockbridge, Mass. Dr. Wiedman has instituted neuropsychiatric clinics for the treatment of nervous and mental disorders in Hartford, in connection with the Hartford Dispensary, 56 Winthrop Street, and in New Haven, in connection with the New Haven Dispensary, Congress Avenue and Cedar Street. Incipient, mild or serious cases of mental disorder will be given attention at the clinics, and mental states aggravating or simulating physical invalidism. The delinquent, the epileptic, the feeble-minded and the socially inadequate can be referred. The clinics are also prepared to give advice concerning the nervous child, the child suspected of subnormal intelligence and the one suffering from undesirable habits and unhealthy methods of reaction.

✠

During the summer the Connecticut State Department of Health began a sanitary survey of the coast of Connecticut with the object of eliminating all unnecessary sewage pollution from the tidal and coastal waters of the state which may be prejudicial to public health. Hearings were held on the first two sections of this survey at Pawcatuck and Stonington, Connecticut, on October 5. At the Pawcatuck hearing, the state of Rhode Island was represented by the secretary of the Rhode Island State Board of Health, Dr. B. U. Richards and Mr. L. W. Frost of the Rhode Island Board of Purification of Waters, and it is hoped that through the coöperation of the two states, the pollution of the waters forming the boundary line will be considerably diminished.

✠

With the October issue is resumed the publication of the monthly bulletin of the Bridgeport Department of Health, under the name of *Bridgeport's Health* instead of "Community Health." The new name seems to represent more nearly the objectives of the Department: to show how health may be obtained and kept; to keep the people informed as to the conditions which influence their health; to tell the conditions of health within the city, and to keep the public in touch with that branch of their city government to which they have given the important duty of safeguarding and preserving the lives and health of the people of Bridgeport.

Georgia

Dr. M. F. Haygood, who for many years has been director of county health work for the Georgia State Board of Health, has been selected by the International Health Board as a beneficiary under their scholarship system. Dr. Haygood has been assigned to Johns Hopkins University where he will be under the best teachers in America until he can complete the entire post-graduate work in public health and preventive medicine.

Illinois

On September 13 the Committee of Ten, appointed last August at a milk conference in Chicago to create favorable public opinion relative to pasteurization, met in the office of the state director of public health in Springfield. Plans for a publicity campaign were mapped out and adopted. The state was divided into ten districts, one assigned to each committeeman. A sub-committee of three members was appointed to

arrange publicity matter suitable for newspapers, special periodicals, special pamphlets and for lectures. Steps were taken also to organize a speakers' bureau, from which lecturers familiar with every phase of the milk problem may be obtained. According to the plans, each of the ten committeemen will be actively assisted by two state district health superintendents. The ultimate object of the campaign is to place in effect in every city in the state a model ordinance, the operation of which will insure a safe milk supply. While the publicity project is state-wide in its scope, efforts will be concentrated at first on the larger cities.

✠

A full-time schedule of crippled children's clinics has been resumed by the divisions of child hygiene and public-health nursing of the State Department of Public Health. During August and September comparatively little of this work was done during the Pageant of Progress in Chicago, the State Fair at Springfield and county fairs. At the present time clinics for crippled children are conducted regularly at twenty-five different points in the state and intermittantly at several other places. Of the 3,257 patients seen at the 185 clinics held during the fiscal year that closed June 30, it was found necessary to hospitalize only 54, satisfactory arrangements for treatment and care in the home having been effected for all others. Of the total there were 1,213 new patients and 335 of the latter were referred to the clinics by practicing physicians. Schedules for clinics are made a month in advance and may be obtained by physicians or others upon request to the department.

✠

During the first week in October when 335 cases of diphtheria were reported the increase amounted to nearly 100 per cent over the last week in September when 189 cases were reported. The latter was slightly higher than the average for the preceding four weeks. Up to October 1, there had been reported during the year something over 1,000 cases less than for the corresponding period in 1921. The State Department of Public Health has issued a special bulletin on the prevention and control of diphtheria. Space has been given to a discussion of the practical use of toxin-antitoxin and of the Schick test. The technique of administering antitoxin and the diphtheria carrier is also covered at some length. Copies of the bulletin are free to the medical profession and public-health workers in Illinois, and will be forwarded promptly upon receipt of requests addressed to Dr. Isaac D. Rawlings, director of public health, Springfield, Illinois.

✠

Smallpox incidence in Illinois between August 1 and October 15 was the lowest in several years. During this period 70 cases were reported, as compared with 91 for last year and 736 for the year before.

✠

A medical officer from the field staff of trachoma experts of the U. S. Public Health Service will shortly be detailed to make a survey of the trachoma situation at Anna. It is reported that considerable eye infection has been detected, especially among the school children, and that conflicting opinions as to the correct diagnosis have arisen. The investigation has been requested in order that proper control and preventive measures may be instituted.

✠

Arrangements have been completed by the State Department of Public Health to conduct a correspondence course of instruction for district health superintendents and local medical health officers. As a supplement to this course a weekly health index will be placed in the hands of those on the mailing list. The index will consist of a summary of the prevalence of communicable diseases by counties and a sheet of editorial matter.

✠

During the week October 22-28, a public-health program was carried out in the rural schools and Churches of Lake County under the direction of the county superintendent of schools. The State Department of Public Health coöperated in the project to the extent of supplying the services of two district health superintendents, motion picture films and other exhibit matter. Physicians, dentists and ministers of the county participated.

The program consisted of professional talks, health movies, health playlets and presentations by a professional public-health entertainer. School children, whose parents came out in goodly numbers, made up the

larger part of the attendance and the occasion was reported to have culminated very successfully.

✠

During the month of October the State Tuberculosis Association held one-day institutes throughout the state. Philip P. Jacobs of the National Tuberculosis Association addressed the meetings held in ten cities.

The State Tuberculosis Association announces that with the formation of county associations in Putnam and Henderson Counties, the whole state has been organized for county tuberculosis work.

Indiana

Miss Ruth Williams, formerly with the Visiting Nursing Staff of Louisville, Ky., has become the executive secretary of the Floyd County Tuberculosis Association, with headquarters at New Albany.

The first full-time county health officer in Indiana was appointed on June 1. Mr. Arthur L. Ollar on that date assumed the directorship of the department for Fulton County, which will have its headquarters in the county courthouse at Rochester.

The Tippecanoe County Tuberculosis Association has appointed Miss Nina V. Short as executive secretary of the Association.

The Nursing Service of Vermillion County, conducted jointly by the Tuberculosis Association and the Red Cross, has appointed Miss Emma Bunge as county nurse.

✠

A child hygiene campaign has been carried out in Vigo County by the Division of Infant and Child Hygiene of the State Board of Health. Practically all organizations interested in child health coöperated in the campaign. Meetings were held in nine places in the county and a total of 614 children were examined.

✠

At the Indiana Health Exposition a "Baby Conservatory" was constructed with windows on all sides. Two hundred and seventy-six children were given examination at the conservatory during the exposition. Another feature of the exposition was the "Fairy House" loaned by the Child Health Organization of America.

Iowa

An informative chart poster is published by the Iowa State Board of Health, presumably for posting in schools and other public places for the benefit of parents and teachers. This lists all the communicable diseases prevalent among children, with a list of symptoms of each disease, explains in detail the dangers of infection in each case, and gives advice regarding quarantine, which cases should be excluded from school, and general advice and detailed information as to immunization against typhoid, whooping cough, diphtheria and smallpox.

Maine

More than 120 doctors, nurses and health officers from all sections of the state attended the clinic held at Lewiston in August. This clinic was conducted under the joint auspices of the Maine Public Health Association, Maine Medical Association, The State Department of Health, the Androscoggin County Medical Society and the staffs of St. Marie Hospital, the Central Maine Hospital and Bates College.

✠

The city of Auburn is to have a venereal disease clinic which will be conducted by the health officer of the city, Dr. Leo F. Hall.

Massachusetts

The Medical Advisory Board of the Boston Health Department has issued a plea to physicians to control diphtheria. This plea is in the form of an eight-page pamphlet setting forth the desirability of giving the Schick test and directions for performing the test. Testimony as to the excellent results obtained from the wholesale application of this test is offered by the Department of Public Health of Philadelphia, the Cleveland Chamber of Commerce and others.

✠

William G. Kirschbaum, health officer of New Bedford, Mass., broadcasted a public-health message from station WDAU in that city on the evening of October 5th, which was heard by several thousand owners of receiving sets. Reports received by the owners of the station (Messrs. Slocum and Kilburn) were from points in western Massachusetts to the tip of Cape Cod and Nantucket.

✠

The health department of the city of Boston reports a statistical investigation of the length of time elapsing between the time

that cases of pulmonary tuberculosis are first reported to the health department and the subsequent date of death. Over 2,000 cases were studied, covering a period of three years, and it was shown that nearly 30 per cent of the deaths from tuberculosis were either not previously reported as cases at all, or were reported as cases less than a month before death occurred.

✠

Under the leadership of Professor Whipple there was organized this summer the Anti-Mosquito Association of Massachusetts. The objects of the Association are to stimulate interest in the suppression of the mosquitoes and other insects which affect human comfort and health; to secure and spread information, and to urge coöperative efforts by individuals, associations, communities and their governments to the end that these insect nuisances be done away with.

✠

The Supreme Court has upheld a regulation of the Health Commissioner on the handling of "rot" and "spot" eggs. This regulation requires that eggs which are solely for use for mechanical purposes should be denatured with a carbolic solution or its equivalent and kept in a metal container. This regulation was contested by a large firm which appealed from the ruling of the lower court that upheld the Health Commissioner.

✠

The Department of Labor and Industries has published a standard form for use in the examination of children applying for employment certificates. This form will be used by all issuing officers. The department is also preparing a handbook explaining the procedure in issuing employment and health certificates and badges for street trades.

✠

The March-April issue of *The Commonhealth* publishes a list of 58 health playlets, together with the name of the organizations from which they may be obtained.

✠

Those who went to the New England Public Health Institute were asked to go as students. The schedule of courses included twelve subjects presented in nine exercises a day for a week. The director of the institute was Dr. John T. Black, Health Commissioner of Connecticut. Dr. Kelly of the State Department of Health has been asked to direct the Institute for 1923.

✠

An excellent bibliography of health books for the home has been compiled by the Public Health Committee of the Boston section of the Council of Jewish Women. This list is printed in the May-June issue of *The Commonhealth.*

Michigan

One hundred and forty-three deaths from drowning were recorded in Michigan during the swimming season of 1922. This number falls below 1921, when 226 persons were drowned, by 83.

While this year's figures show a reduction, officials of the health department are of the opinion that if weather conditions for this summer and last were compared and the resultant decrease in popularity of bathing beaches considered the number of drownings would be proportionally equal. Statistics compiled in the United States Weather Bureau show that the temperatures of June, July and August this year were considerably lower than the same months of 1921.

✠

Health authorities can give no reason for the small number of cases of and deaths from infantile paralysis this year and do not know why the reactions of 1911 and 1916 were not repeated. With a jump from 19 cases in 1920 to 377 in 1921 and then a drop to 22 cases this year in the records, there is no attempt to predict the 1923 situation.

Following the 1921 epidemic letters were sent to all physicians in the state urging them to do all in their power to prevent a possible spread of the disease. Nothing more has been done because science has offered nothing new in the cause or treatment of the disease. It is most prevalent during June, July, August and September.

✠

Every child in Stanton, a village with a population of 862, has been immunized against diphtheria, but 3 deaths that health officials declare could have been prevented are recorded in the books of the State Department of Health. An epidemic of 22 cases swept over Stanton and before the Department was notified the cases of 3 of the children had gone so far that antitoxin could not save them. Local officials now have the Stanton situation under control. If

every child in Michigan were immunized there would be little or no diphtheria. Several small epidemics have been reported during October, but all have been controlled by use of antitoxin. Both toxin-antitoxin and antitoxin are distributed free of charge by the State Department of Health and can be obtained in every village and city in Michigan.

✠

Baby shows are ever popular. The Detroit Department of Health has just concluded its fourth contest this season, this time in conjunction with the International Institute. Fifteen countries were represented by the mothers of the babies—United States, Roumania, Czecho-Slovakia, Armenia, Syria, Italy, Greece, Belgium, Mexico, Bulgaria, Hungary, Ukraine, Bosnia, France and Jugo-Slavia. In Group I, for babies under 7 months, Ruth Hromadko won first prize with a score of 98.7. Ruth's mother was born in this country and her father comes from Czecho-Slovakia. Roumania and Czecho-Slovakia secured the second and third prizes. In Group II, for babies 7 to 12 months, Greece, Bulgaria and Italy took the first three prizes in the order mentioned. Little Eleanor Baisoglu whose mother hails from Greece captured first prize. The United States secured first and second prizes in Group III, for babies from 13 to 24 months, and Greece captured the third prize. The prize winners were planning a party to talk it over and get better acquainted. Thus does the Melting Pot Melt.

✠

The health department of Detroit will have, for the fiscal year ending June 30, 1923, $1.59 per capita for health work (not including capital costs), of which approximately $0.75 is for hospitals and the balance, or 84 cents, for other health activities. The health department appropriation represents 3.8 per cent of the total tax levy. Of the total spent for maintenance of the health department, 46.7 per cent is for hospitals, 33.2 per cent is for medical service, including dental and school inspection, infant welfare, venereal disease, contagious disease, tuberculosis and supervision. The remaining 25.1 per cent is for the maintenance of food inspection, laboratories, sanitary engineering, records and general administration.

The traveling clinic of the State Department of Health has visited, during the two years of its existence, seventy-five counties. This clinic consists of a tuberculosis and a children's unit. Forty-three hundred and forty-three persons have been examined for tuberculosis and eleven thousand, six hundred and thirty-one children have been examined for diseases and defects.

The second annual conference of health officers and public-health nurses will be held in Lansing from December 4 to 8, inclusive, under the auspices of the Michigan Department of Health and the Michigan Public Health Association.

This year's plan is similar to that of the first conference held here last year. It is designed as a short course of intensive training in public-health work. The program will stress rural health problems, the legal aspects of public-health and child-hygiene work under the provisions of the Sheppard-Towner Law. The prevention of goiter will receive special emphasis.

✠

Dr. R. O. Burke of Chicago succeeds Dr. C. A. Wilson as head of the tuberculosis unit of the State Health Institute. Dr. Wilson is now in Detroit.

Mrs. Elizabeth H. Vaughan of Detroit has been named assistant director of the Bureau of Child Hygiene and Public-Health Nursing. Mrs. Vaughan was formerly an official in the Visiting Nurses' Association and was overseas during the war with the American Red Cross.

Jessie Stevens, University of Wisconsin '22, has taken a position as junior bacteriologist in the laboratory of the State Department of Health.

The Board of Education of Detroit has arranged special classes for the blind and also for children whose sight cannot be corrected by the use of glasses. These later classes are known as sight-saving classes, and are located in public schools.

In the regular examination of school children by school medical examiners, children found to have defective hearing or sight will be urged to consult their physicians in order that defects may be corrected as fully as possible. That the records may be uniform, the Department of Health has prepared report blanks upon which the phy-

sician may record his findings and also his recommendation regarding the class at school which the child should attend.

Whenever a child is found whose parents cannot afford a physician, the child will be referred to the nearest hospital for such examination. Blanks have been provided these hospitals, so that as soon as the report is prepared it should be forwarded to the Department of Health at the earliest opportunity. Where the report indicates that a child is recommended for a sight-saving class, a class for the blind, or a class for defective hearing, the report will be transferred immediately to the Department of Special Education of the Board of Education. The child will then be assigned to the class for which he is eligible as indicated by the report of the physician. This system will be carried out in so far as the capacity of the class rooms will permit. These classes have been in operation for some time, so that it is felt that the experimental stage is past.

The cases of the principal diseases reported in the city of Detroit for the week ending October 7, as well as the norm, are as follows:

	This week	Norm
Scarlet fever	74	50
Diphtheria	60	91
Smallpox	..	5
Whooping cough	34	23
Typhoid fever	7	14
Measles	1	9

Missouri

The proposal of the Committee on Public Health and Welfare of the Missouri State Constitutional Convention, known as Proposal No. 192, which read: "The State General Assembly shall provide the means for the safeguarding and promotion of public health and welfare," was amended on October 10th by the Convention sitting as a committee of the whole, to read: "The General Assembly shall in the exercise of its legislative discretion, provide for the safeguarding and promotion of public health," by a vote of 27 ayes to 18 nays.

The amended proposal is to be acted upon by the Convention on its second, and again on its third reading; but it is reported that the prospect for its final adoption by the Convention is good.

Several proposals and amendments antagonistic to Proposal 192, submitted by Christian Scientists and other irregular practitioners, were voted down by the Convention sitting as a committee of the whole, after a campaign of strenuous activity.

✠

Since January 1 nine county health departments have been organized and placed in operation. Each of these is under the direction of a full-time health officer. These departments are established by the State Board of Health with the assistance of the United States Public Health Service and the International Health Board. Funds from county sources for partial support of these departments have been secured, varying in amounts from $3,600 to $12,000. Eleven county health departments are now in operation in the state.

✠

A sanitary engineering division has been established in the State Board of Health under the direction of Mr. George W. Putnam, and a division of tuberculosis under the direction of Dr. John F. Mahoney. An extensive anti-tuberculosis program is being undertaken.

✠

The third annual health officers' conference will be held in Columbia, Mo., November 24 and 25, under joint auspices of the State Board of Health and the State University.

New Mexico

Dr. Beaver, Valencia County health officer, has arranged with an otolaryngologist and a dentist to visit all parts of his county for the purpose of correcting defects found in school children. The county public-health nurse will precede the group, arranging for the clinics. Dr. Beaver and Miss Harris have done a surprisingly large amount of work among the school children and have found much that needed attention. They are to be congratulated on the good showing made, especially in view of the extent of their territory. It is understood that the two specialists have agreed to make the corrections for such fees as the public are able to pay, and to attend indigent cases free of charge.

✠

Miss Maud Bradish, of Walla Walla, Wash., has just been appointed public-health

nurse of Union County, to succeed Miss Irene McDonald. Miss McDonald is going to Denver.

Miss Margaret Tupper has resigned as supervising nurse in the Mexico State Bureau of Public Health, and has entered the public-health nursing course at Teachers' College, Columbia University, for special work.

✣

Dr. R. M. Schwartz, full-time health officer of Santa Fe County, resigned on October 1 to return to Cleveland, O. He was succeeded by Dr. D. B. Williams, who had been serving as full-time health officer of Torrance County. The health unit in this latter county was compelled to discontinue on account of a severe drought that partially depopulated the county and reduced its income considerably.

✣

A new full-time county health unit is to be established in Dona Ana County on January 1.

✣

Mr. H. F. Gray, sanitary engineer, State Bureau of Public Health, made an investigation of the pollution of the Las Animas River during the latter part of September. Since this was an interstate matter, Mr. Gray and the state director of public health went to Denver to confer with the Colorado State Board of Health on the subject. They were most cordially received, and assured by the Colorado authorities that they would coöperate in every way.

✣

On October 9 and 10 there was held the first meeting of insurance agents of New Mexico. The state director of public health read a paper on "The First Three Years of Mortality Registration in New Mexico."

New York

In enrolling nurses in the correspondence course in public-health nursing opened by the University and Bellevue Medical College, in coöperation with the New York State Department of Health, it was found that the general educational level among the nurses is higher than many had supposed. Nearly 40 per cent of the applicants have had four years in high schools, 4 per cent have had at least two years in college, and less than 25 per cent have not had two years in high school. Over 65 per cent are graduates of training schools connected with hospitals of more than 100 beds where training consumed not less than two years. Under 4 per cent have had no hospital training. Over 30 per cent are graduates of training schools, giving at least two years practice, connected with hospitals with less than 100 beds. If this group may be taken as typical, it would seem that the majority of nurses are capable of measuring up to the increasing demands which are being made upon them to qualify as teachers of health. The course is evidently reaching those for whom it was intended, namely, graduate nurses already in the field of active practice, especially in rural sections of the state. Thirty-four per cent of the first 200 enrolled are employed in rural districts having not over 2,500 inhabitants. The course consists of approximately five hundred hours of reading and study. One week of residence will be required in one of the three or four centers in the state.

✣

During the past few years there have been a number of outbreaks of typhoid fever in upstate cities, which have been traced to the mixing of auxiliary water supplies drawn from polluted sources for fire protection purposes with the regular drinking water supply of the city. The infusion of the polluted water in such cases has been due to cross connections in the water mains, and Mr. C. A. Holmquist, director of the Division of Sanitation of the State Department of Health, who has recently made a special report on this subject, has made long continued efforts to persuade city authorities to eliminate all such cross connections or to protect them by double check valves and double gate valves located in manholes where they would be accessible for inspection. As the result of a letter sent some months ago to the Consolidated Water Company of Utica on this subject, action was taken by the company which has now resulted in the cleaning up of all menacing conditions of this kind in that city. The engineering and biological departments of the water company investigated a total of 76 industrial plants in Utica and vicinity which are supplied by the company, and of these 40 had auxiliary fire supplies, only 11 of which were protected by double check valves. Accordingly, the company ad-

dressed a letter to each of the plants where potential danger of contamination of the public water supply existed, calling attention to the recommendations of the State Department of Health. Since August 1, 1922, all the requirements have been met by all the plants except one which has not been operated for some time and will probably not be reopened.

✠

At the September term of the Appellate Division of the Supreme Court, sitting in Albany, a decision was handed down in the case of Maria Berresi vs. the State Commissioner of Health, which emphatically sustains the discretionary power of the Commissioner to issue or to withhold annual licenses to midwives, as provided in the public-health law and the state sanitary code. The decision, which was written by Justice Kellogg, reversed the order of the lower court which had granted a writ of mandamus compelling the Health Commissioner to issue a license to the midwife in question. A review of the case by Justice Hinman, who concurred in the unanimous decision of the Appellate Division, likewise emphasizes the unrestricted right of the state health authorities to control the practice of midwifery by the issuing of licenses.

✠

The Public Health Committee of the New York Academy of Medicine is conducting a study of child health in New York City. This study will follow the lines of the investigations made in previous years by this Committee, of hospitals and dispensaries. Dr. E. H. Lewinski-Corwin will direct the present study, as he also did the previous studies. Mr. Homer N. Calver is assisting in the direction of the study.

✠

The local medical association of Spokane County has inaugurated a method of acquainting the public with medical news in a fashion that maintains the highest ethical standard. Three times a week articles on medical topics of interest and importance couched in terms comprehensible to the average citizen are published in the local newspapers over the name of the County Medical Society.

✠

Less than 10 per cent of the 750,000 food handlers who live and work in New York City are examined for communicable disease in the course of a year. Out of the number so examined less than 25 per cent are examined by the staff of the health department. The balance of the examinations are made by private physicians. These have discovered very few cases of communicable disease. Since this work started in 1915, 7 typhoid carriers have been detected.

✠

For the coming year the Maternity Center Association in New York will concentrate its work in one district, on the lower east side. Previously its activities have been carried on in various parts of the city. The new arrangement will make it possible to measure the effect of an intensive effort applied to a small and definite area.

✠

M. Luise Diez, M.D., has recently been appointed obstetrician in the Division of Maternity, Infancy and Child Hygiene. Dr. Diez is a graduate of the Women's Medical College of Pennsylvania, and after serving as interne in the West Philadelphia Hospital for Women, she was engaged in obstetric practice in Philadelphia for 15 years, during which time she was attending obstetrician at the Women's Hospital of Philadelphia, also serving on the obstetrical and gynecological staff of the Philadelphia General Hospital and the West Philadelphia Hospital for Women. Dr. Diez took a post-graduate course at Dresden, Germany.

✠

Valconlon L. Ellicott, M.D., Dr. P.H., of Baltimore, has been appointed epidemiologist in the New York State Department of Health. Dr. Ellicott is a graduate of the Medical School and the School of Hygiene and Public Health of Johns Hopkins University. He has recently served as interne in the Willard Parker Hospital, New York City.

✠

Stanton P. Hull, M.D., has recently been appointed member of the Public Health Council by Governor Miller, to succeed Mrs. Elmer Blair, whose term has expired. Dr. Hull is a graduate of Albany Medical College and took a post-graduate course at the New York Lying-In Hospital and the New York Post-Graduate Hospital. He has been health officer in districts of Rensselaer County since graduation.

Ohio

Dr. E. J. Schwartz has been appointed by Health Director Snively to have charge of the Bureau of Vital Statistics and he is now engaged in this work. He succeeded Dr. U. G. Murrell of Wilmington, who was appointed to this position by Secretary of State Smith before the Bureau of Vital Statistics was transferred to the Department of Health. Dr. Schwartz plans to increase the service of this important bureau to the health workers and to the general public.

Dr. R. C. Dysart, Columbus, recently returned from two and one-half years' service with the Red Cross in the Baltic States, has been appointed assistant in the Division of Communicable diseases of the State Department of Health.

✠

The annual meeting of the Ohio Public Health Association will be held in January or early in February, the date to be fixed later. Plans are under consideration for extending the scope of the Association's activities in public-health work in the state.

✠

The sub-committee of the Toledo City Council on the municipal hospital has proposed a bond issue of $200,000 to remodel and equip a building for a new city hospital. The present institution has bed accommodations for 45 patients, and the proposed new hospital will provide 150 beds. During 1921, 30,965 treatments were given at the present hospital, of which 27,110 were given in the venereal department.

✠

Miss Margaret Royce and Miss Christine Brunk have joined the staff of the Manfield Public Health Nurse Association. This association is taking an active part in the work of the Child Health Demonstration of the National Child Health Council.

✠

The Van Wert City Board of Health has employed Miss Clara Schumm as community health nurse for the city.

✠

The sum of $62,000 has been appropriated for a children's pavilion and $100,000 has been appropriated for an administration building to be erected at Warrensville, outside of Cleveland, for the care of the tuberculous.

Dr. Joseph Blickensderfer, health commissioner of New Philadelphia, has been made health commissioner of Tuscarawas County, succeeding Dr. Max Shawaker, Dover, resigned. Dr. Blickensderfer will act as commissioner for New Philadelphia and the county as a whole.

✠

Auglaize County has completed the organization of a public-health league. There are forty directors, representing each township and village in the county.

Mexico

It is reported that the Republic of Mexico may soon have a new national holiday to be called "Jenner Day" in honor of the discoverer of vaccination for smallpox. A number of Mexican physicians and health officers in the northern part of the republic are working to secure the establishment of the new holiday.

Nova Scotia

Very impressive exercises marked the laying of the corner stone of the Medical Science Laboratory Building of Dalhousie University September 29. In describing the uses to which the new building will be placed, President Mackenzie said that for the present it would be used for the study of bio-chemistry, physiology, pharmacology and hygiene. Dr. John Stewart, in laying the corner stone, used the same trowel which Lord Dalhousie used in laying the corner stone of the first building of the university over a hundred years ago.

The post-graduate course given the medical profession of the Maritime Provinces by Dalhousie University has proved of great interest to the medical fraternity. On September 28 medical clinics were given by the staff of the Massachusetts-Halifax Health Commission, 17 physicians taking in these lectures and clinics attending. The newest phase of work from the purely medical standpoint was that of the pre-school age dental clinic. Dr. Arrabelle MacKenzie was able to show numerous children where eruption of the teeth showed faulty nourishment of the mother during the prenatal period; where the enamel of the teeth was absent or worthless because the expectant mother had not taken the right kind of food.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Glucose Mobilization Rate in Hyperthyroidism.—The abnormal blood sugar curves reported heretofore in cases of hyperthyroidism were found, for the most part, in the authors' cases. Normal curves in strikingly toxic cases, however, were not unusual. It has been shown that in hyperthyroidism, sugar, when it is offered to the tissues as a fuel, is burned with great avidity. The increased utilization of carbohydrate after carbohydrate ingestion, along with the maintained high blood sugar, points toward an inability to store glucose—most probably a failure of liver storage due to some toxic change in the liver caused by the disease. This fits in with the results found in thyroid-fed animals and is suggested by clinical cases of exophthalmic goiter in which carbohydrate restriction is attempted.—Bertram J. Sanger and Elsie G. Hun, *Arch. Int. Med.* 30,397 (1922).

✠

A New Typhus Organism.—The author gives an account of an organism described by Schestopal under the name of "Spirochæta emiliæ Schestopal," which is found in the blood of the roseolæ or petechiæ of typhus patients. It is present in all stages of the disease, but is most likely to be met with in roseolæ two or three days old. The organism is a spirochæte varying in length from a quarter to five times the diameter of a red corpuscle. It is thinner than a red corpuscle and is about the size of S. pallida, but has more numerous and smaller spirals. Almost all the spirochetes in the field are attached to red corpuscles. They show active movements which last for about 36 hours after the blood has been taken.—Belai, *Wien. klin. Woch. schr.* April 20, 1922; *Brit. Med. Jour.*, Aug. 26, 1922.

✠

Diagnostic Value of Blood Sugar Curves in Neurology.—Sugar tolerance tests are not believed to be of sufficient value neurologically to make this procedure routine in all cases. The whole technic is difficult to carry out; it is time-consuming, and often disagreeable to the patient. Blood sugar curves have no prognostic value, and their change in type cannot at the present time be interpreted as a proof of the effectiveness of therapeutic procedures.—Sidney I. Schwab, *Arch. Neur. Psych.* 8, 401, (1922).

✠

Studies in the Kottmann Reaction for Thyroid Activity.—In clinical cases of hyperthyroidism the Kottmann reaction may return to normal after thyroidectomy. Fright, on the other hand, produced a positive reaction in two patients; in control patients who were subjected to similar trauma, but who were not frightened (one unconscious, one semi-conscious, the other conscious and calm), the reaction was within normal limits. Experimentally, it has been found that thyrotoxin injections, irradiation and massage of the hypertrophied glands resulted in an increased protective property of the serum, which became manifest in the course of several days. The serum alteration, is therefore, not a direct one, but is evidently the result of alterations in cellular metabolism brought about by the increased thyroid activity. Other experimental procedures may alter the reaction (bacterial shock, peptone shock, trypsin ingestion, hemorrhage, irradiation of remote organs). In no case was the delay in the reaction comparable to that observed with exophthalmic serums, and the authors do not believe that the alterations in the reactions observed under these experimental conditions will detract from the clinical usefulness of the test in the diagnosis and the control of the therapy of thyroid dysfunction.—W. F. Petersen, F. T. H'Doubler, S. A. Levinson and J. E. F. Laibe, *Arch. Int. Med.* 30,386, (1922).

✠

Transparent Milk as a Bacteriological Medium.—Milk may be transformed into a transparent culture medium by the addition of small amounts of various salts. Sodium citrate seems to be the most suitable for this purpose. In such a medium there may be observed not only the ordinary reactions of various bacteria in milk, but also some others not observed in untreated milk. The principal advantages of

the transparent milk as a medium reside in the greater visibility of changes which occur in it. Indicators are much more easily seen in it than in opaque milk. As long as the acidity remains below $_{P}H5.5$, colorimetric hydrogen-ion determinations are easily made. Clouding and the formation of sediment due to bacterial growth may be observed as in bouillon when no visible change whatever is produced in ordinary opaque milk.—J. Howard Brown and Paul E. Howe, *Jour. Bact.* 7, 511, (1922).

✠

Differential Diagnosis of Diabetes by Means of Glucose Tolerance.—In the presence of sugar in the urine, before a diagnosis of diabetes can be definitely established, a fasting blood sugar estimation should be made to ascertain whether the urinary sugar is due to a true diabetes or merely to a permeable renal filter. Children with a diabetic inheritance should always be subjected to a glucose tolerance test, as the development of diabetes can thus be established before the ordinary tests can give any clue. The presence of glycosuria indicates one of two things: (1) a true disturbance of carbohydrate metabolism, i. e. diabetes, or (2) a permeable renal filter, i. e., not diabetes.—Henry J. John, *Jour A. M. A.,* 79, 1234, (1922).

✠

Value of Sachs-Georgi Test.—Seven hundred serums were tested by the author by the Sachs-Georgi test. There was 92.2 per cent correspondence with the Wassermann test. The Sachs-Georgi test, perfórmed with an extract of the heart of the black pig common to North China, is considered a reliable test for syphilis. The test is simple, cheap and specific. In the supplementary aid to blood and spinal fluid Wassermann laboratory it is very useful as a test.—H. W. Y. Taylor, *China, Med. Jour.* 36, 344, (1922); *Jour. A. M. A.* 79, 1080, (1922).

✠

Cultivation of Trichomonas.—Trichomonas is a widely and highly prevalent inhabitant of the body of man, and is being extensively treated as a pathogenic organism. There exists only circumstantial evidence of any harmful effects from it or even of its true parasitism. The ease with which it may be grown artificially, its feeding habits, its high prevalence in the healthy and its long continuance without resulting disturbance in the human body indicate it as a harmless commensal. For a proper judgment of the clinical significance of Trichomonas, the organism must first be accurately differentiated from others now confused with it and, if there are different organisms now included in the genus, they must be separated. Trichomonas must be studied under the same conditions before they may be differentiated. This would appear to be best done in culture in the same mediums. In culture in the same material, Trichomonads from the human mouth, vagina and intestine have not been certainly differentiated in this study. There exists no proof that Trichomonads of other animals are identical with those of man, and at least some of them are certainly distinct.—Kenneth M. Lynch, *Jour. A. M. A.,* 79, 1130, (1922).

✠

The Blood Groups from Transfusion Standpoint.—The author presents evidence that the previous taking of a drug, or general anesthesia, or roentgen irradiation may modify the blood enough to change it from one group to another for the time being. This may interfere with transfusion work. He points out, further, that serum from persons with cancer, tuberculosis or inflammatory processes in the subacute and chronic stages lake the blood cells and conglutinate them. He classifies bloods in five separate groups.—N. J. Vorschuetz, *Zeitsch. klin. Med, Berlin,* 94, 459, (1922); *Jour. A. M. A.,* 79, 1186, (1922).

✠

Staining of Tubercle Bacilli.—The author gives the findings in parallel tests with five different staining methods in the sputum from 56 cases and from the pus in 40. All this evidence testifies, he asserts, that the Spengler method, or the modification of it by Joetten-Haarmann, is far more reliable than any other. The number of tubercle bacilli shown by the Ziehl-Neelsen in one visual field averaged only 4.67, in marked contrast to the 25.18 found with the Spengler technic in the same sputum, the Konrich method yielded only 9.26. The Ziehl-Neelsen twice was entirely negative when the other methods showed 2.8 and 0.65. In one case the Ziehl showed 19.7; the Spengler, 370.3. With the Spengler method, the ordinary carbol-fuchsin stain is followed by picric acid-alcohol for two or three seconds after pouring off the fuchsin. Then 3 or 4 drops of a 15 per cent solution of nitric acid for five seconds. This is then poured off, and the picric acid-alcohol is applied again until the sputum looks yellowish. Then wash in water; dry, etc. The picric acid solution is made with 2 gm. of picric acid in 40 c.c. of distilled water, allowed to stand

for twenty-four hours; then it is filtered, and an equal volume of 96 per cent alcohol is added.—F. Geschke, *Zeitsch. Tuberk., Leipzig,* 36, 351, (1922); *Jour. A. M. A.* 79, 1186, (1992).

✠

Changes in Nutrient Agar Due to Clarifying with Egg.—In making a standard agar the method of clarifying should be specified. An agar which is egg-cleared is a special, or egg agar because: 1. It contains sulphur compounds derived from the egg. 2. The reaction of the agar is influenced. 3. A fermentable substance is added, presumably glucose from egg white, which in both anærobic cultures and on ærobic plates affects the rate of growth of certain bacteria.—Luther Thompson, *Jour. Lab. Clin. Med.* 7, 758, (1922).

✠

A Box for Handling Small Animals in the Laboratory.—For the past two years in the laboratory of surgical research of the Mayo Foundation the author has used a simple box for controlling small laboratory animals such as rabbits and cats, so that tubation, feeding, and intravenous injections into ear veins can be carried out easily by one person. A description of the box is given; also two illustrations. The animal (rabbit or cat) is placed in the box, and the box closed with the head of the animal protruding through the aperture, pillory fashion. A hinge holds the box closed. The animal's head is held relatively fixed and the investigator is protected from scratching. For esophageal intubation a No. 10 French soft rubber catheter is introduced through a small opening in a wooden tongue depressor which has been pried between the teeth of the animal as a mouth gag. The catheter is passed into the esophagus by touch and to the stomach. For the intravenous injection of bacteria, drugs, and so forth, the ear is caught at its tip and the head is gently but firmly pulled forward away from the box. The hypodermic needle is then introduced into the marginal vein and the injection made. Animals handled in this manner are subjected to a minimum amount of discomfort.—Linwood D. Keyser, *Jour. Lab. Clin. Med.* 7, 761, (1922).

✠

Etiology of Dental Caries.—The examination of selected carious material showed the constant presence of a definite type of bacillus. The bacilli are capable of producing a high degree of acidity by the fermentation of carbohydrates. The average final pH value of nine strains was 2.75, which is sufficient to decalcify teeth. Teeth left in contact with pure cultures over prolonged periods show changes almost identical with those found in natural caries. Such teeth showed erosion of the enamel with penetration of the dentinal tubules and the formation of liquefaction foci. The bacilli, to which the authors propose to give the name B. acidophilus odontolyticus, in their resistance to and formation of acid, resemble the "acidophilus" group of Moro; biologically, however, there are several points of difference.—J. McIntosh, W. W. James and P. Lazarus-Barlow, *Jour. Exp. Path.* 3, 138, (1922).

✠

Pure Cultures of Large Mononuclear Leucocytes.—Pure strains of mononuclear leucocytes were isolated from the blood of adult chickens and kept in active condition for nearly three months. The cultures were composed of large mononuclear leucocytes which migrated and proliferated in vitro at a slower rate than fibroblasts. The cells had no tendency to form a tissue, as do fibroblasts and epithelial cells. They were much less resistant than fibroblasts. The activity of large mononuclears was increased by embryonic tissue juice and inhibited by homologous serum.—Alexis Carrel and A. H. Ebeling, *Jour. Exp. Med.* 36, 365, (1922).

✠

A Pure Strain of Cartilage Cells in Vitro.—A strain of cartilage cells obtained from the pars cartilago scleræ of the eye of the chick embryo has been cultivated for more than three months in vitro. The initial growth of the cartilage was possible only on the free surface of the coagulum. The rate of growth of cartilage was slower than that of fibroblasts and epithelium. After cultivation on the surface of the coagulum the cartilage cells could multiply even when imbedded in the coagulum, but their growth was less extensive and uniform.—Albert Fischer, *Jour. Exp. Med.* 36, 379, (1922).

✠

The Iodin Content of the Blood Following Thyroidectomy.—After thyroidectomy in dogs the iodin content of the blood is increased. The administration of fresh thyroid gland of sheep by mouth to thyroidectomized dogs causes the iodin content of the blood to fall, so that it returns to the normal preoperative level. When the thyroid feeding is discontinued the iodin content of the blood is again increased.—W. A. Hudson, *Jour. Exp. Med.* 36, 469, (1922).

Reliability of the Benedict and Folin-Wu Blood Sugar Determinations.—The Folin-Wu blood sugar determination was found to give more reliable results than Benedict's method.—F. A. Csonka and G. C. Taggart, *Jour. Biol. Chem.* 54, 1 (1922).

✠

Sickle Cell Anemia.—The clinical features and the morphologic alterations of the red blood cells are so characteristic that differential diagnosis is not difficult. The blood picture does not resemble that seen in any of the more common anemias, and it is possible that the disease represents a clinical entity. If that is true, it is of particular interest that up to the present the malady has been seen only in the Negro, and, so far as could be ascertained, it is the only disease peculiar to that race. V. R. Mason, *Jour. A.M.A.* 79, 1318, (1922).

✠

Hemolytic Streptococci in Feces in Scarlet Fever.—The author asserts that hemolytic streptococci are more abundant in the feces from cases of scarlet fever and from cases of nephritis, whether associated with scarlet fever or not, than in the feces of normal patients. The type of hemolytic streptococci isolated from the feces of such cases is not a uniform one. Such streptococci appear to be non-pathogenic to rabbits.—E. Wordley, *Lancet, London,* Sept. 9, 1922; *Jour. A.M.A.* 79, 1365, (1922).

✠

Quantitative Determination of Carbon Monoxide in Blood by Tannic Acid Method.—Measure into a test tube of the same size and glass as used for the standards, 1 c.c. of a 0.05 per cent solution of potassium citrate or 0.03 per cent solution of sodium fluoride, depending on the anticoagulant used in preparing the standards. Then, by the aid of a hemospast, make a small puncture wound in the tip of the sterilized finger of the subject, and, with a capillary pipette, draw up 0.1 c.c. of blood. Quickly discharge this into the solution in the test tube, and add 1 c.c. of the mixture of pyrogallic and tannic acids as described. After inverting twice to mix the constituents thoroughly, and allowing to stand from 8 to 10 minutes, a comparison with the standards can be made and the percentage noted. It is a very good practice to prepare a similar sample from an unexposed subject, thus insuring against spoiled reagents or change in standards. Any differences noted in this control should be considered in estimating other samples. The comparison of unknowns with standards can be made in various ways. Our procedure is to hold the unknown in the hand together with a row of four or five standards, and move its position until it, by color comparison, fits between two of them, after which an estimation can be made on the basis of the value of the two standards; or comparison can be made in a test-tube rack having fixed positions for the standard and a space between each of the interposition of the unknowns. In the use of this latter, the unknown is again moved until a place is found where it is, say, a little more red than the 20 and a little less than the 30. In making the comparison, the observer should stand with his back to the light, viewing the tubes by reflection, and should change the position of the tubes several times to note if any differences occur that are due merely to unequal lighting effect. Also holding the tubes against a black background, such as a coat sleeve, seems to facilitate the observation. The procedure of preparing the standards is given. The results are more easily obtained, and are, as a whole, more dependable than with any other method tried.—R. R. Sayers and W. P. Yant, *Public Health Reports, U. S. P. H. S.* Oct. 6, 1922.

✠

CONVENTIONS, CONFERENCES AND MEETINGS

This calendar is published through the co-operation of the National Health Council, 370 Seventh Avenue, New York City. The Council will be glad to answer promptly any written or telegraphic inquiries regarding meeting dates in order to avoid conflicts.

December 1-2, Forty-eighth Session New Jersey Sanitary Association, Lakewood, N. J.

December 4-7, American Society of Mechanical Engineers, New York City.

December 4-8, Radiological Society of North America, Detroit, Mich.

December 8-9, Western Surgical Association, Minneapolis.

December 12-14, Southern Surgical Association, Pinehurst, N. C.

December 26-30, American Association for Advancement of Science, Boston, Mass.

December 27-29, American Association for Labor Legislation, Chicago, Ill.

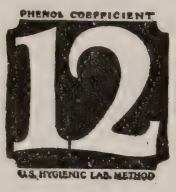
FOREIGN MEETINGS

December 18-23, International Congress on Health Education, Paris.



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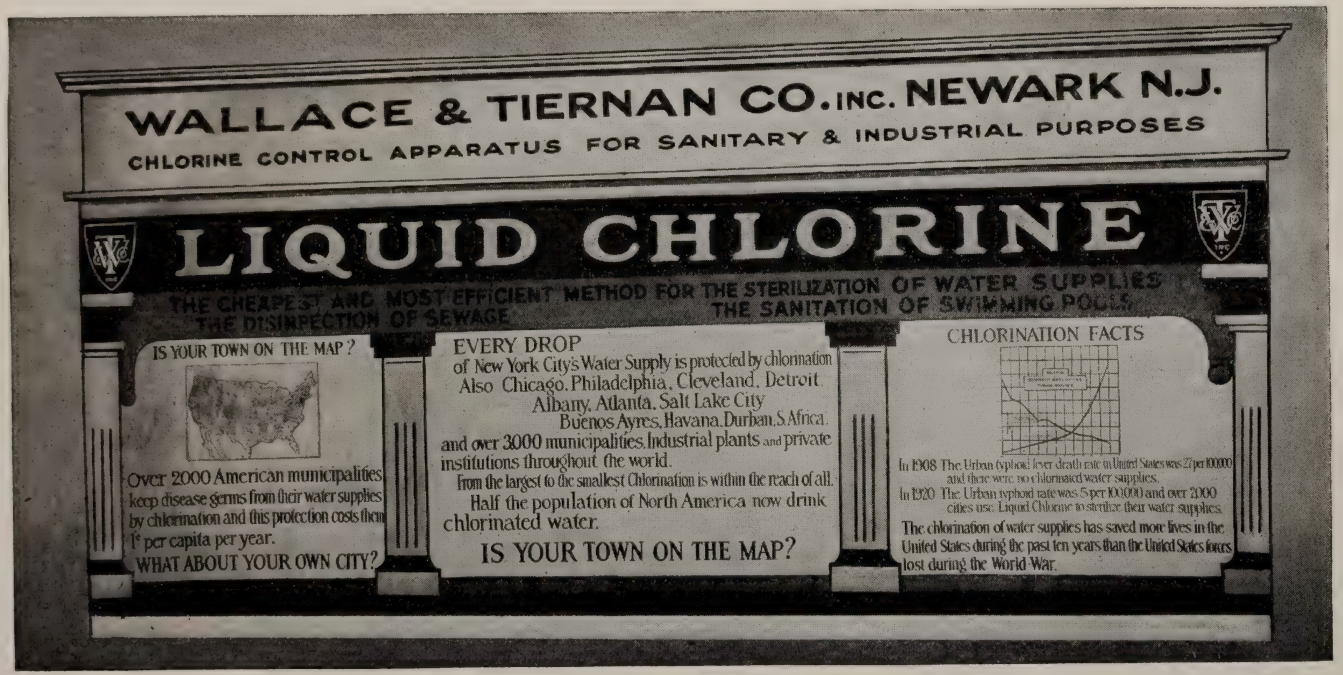
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CONTENTS

Page

The Semicentennial Banquet 1

A Half Century of Public Health 3
Stephen Smith, A.M., M.D., LL.D.

First Report of the Committee on Municipal Health Department Practice of the American Public Health Association, November, 1921 7
Louis I. Dublin, Ph.D., Secretary

The Influence of Sanitary Engineering on Public Health 16
George W. Fuller

The Wider Development of Standard Methods 23
Roger G. Perkins, M.D.

Report of the Committee on Standard Methods 27
Roger G. Perkins, M.D., Chairman

Continued on Page VII

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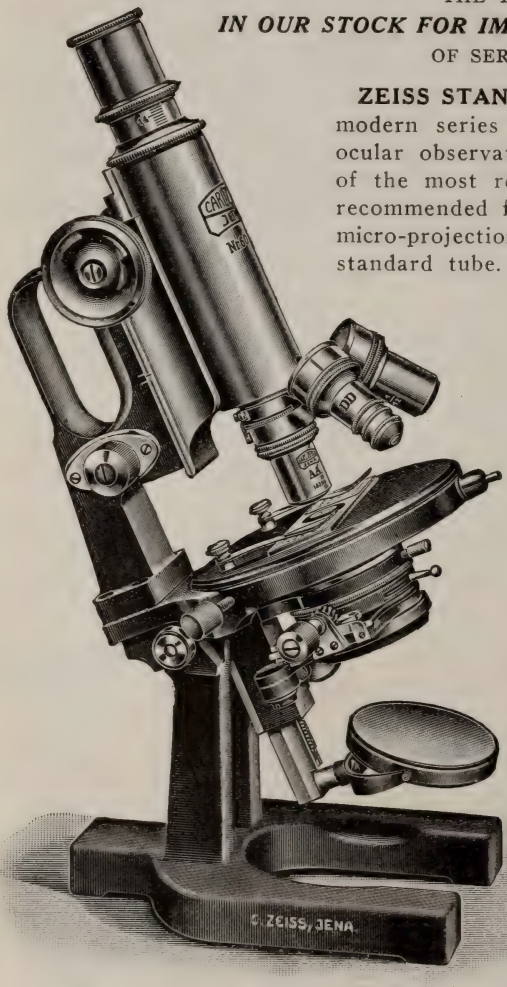
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Continued from Page V

Page

Opportunities of Vital Statisticians 30
W. A. Plecker, M.D.

Report of Committee on More Accurate Population Estimates 34
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The Hygiene of Cardiac Children 35
Charles Hendee Smith, M.D.

Practical Means of Reducing Maternal Mortality 39
Ralph W. Lobenstine, M.D.

Proper Size of Sand for Rapid Sand Filters 44
W. H. Dittoe

Discussion .....Alexander Potter 48

Botulism from the Regulatory Viewpoint 49
Charles Thom, Ph.D.

Editorials:

The Better Part of Valor 54
New Blood in the Public Health Service 55
An Explanation 55

Association News:

Resolutions of the Semi-centennial Meeting 56
List of New Members 58

Health Employment Bureau 59
Book Reviews 60
Public Health Notes 61
Legislation, Federal 67
Legislation, State 70
Index of Federal Legislation 70
State Health Notes 78
Public Health Laboratory Notes 82

INDEX TO ADVERTISERS

	Page
FOOD PRODUCTS	
Borden's Farm Products Company, Inc.	XIV
Horlick's Malted Milk Co	XV
Mellin's Food Company	V
HELP WANTED	59
INSURANCE CO. SERVICE TO HEALTH OFFICERS	
Metropolitan Life Insurance Co	VIII
Prudential Insurance Company of America	II
LABORATORIES	
Bendiner & Schlesinger	XXXIII
Boston Bio-Chemical Laboratories	XXXIII
Industrial Health Conservancy Laboratories	XXXIII
Pease Laboratories, Inc	XXXIII
Providence Chemical Laboratories	XIV
LABORATORY APPARATUS AND SUPPLIES	
Bausch & Lomb Optical Co	XI
Central Scientific Company	XVIII
Daigger & Co., A	XXXIII
Digestive Ferments Company	Back Cover
Eimer & Amend	XXXV
International Equipment Company	XIII
Lehmkuhl, H. W	XVI
Leitz, Inc., E	X
MacGregor Instrument Company	XXXIV
Sargent & Company, E. H	XII
Spencer Lens Company	XIII
Thomas Company, Arthur H	VI
Will Corporation	XV
LIQUID CHLORINE AND APPARATUS	
Wallace & Tiernan Co., Inc	IV
POSITIONS WANTED	59
PUBLIC HEALTH COURSES	
Harvard Medical School	XVI
University of Pennsylvania	XVI
Yale University	XVI
SANITARY ENGINEERS	
Fuller & McClintock	XXXIII
Metcalf & Eddy	XXXIII
STANDARD HEALTH LITERATURE	
A. P. H. A. Publications	XVII, XXXIII
STEREOPTICONS AND MOTION PICTURES	
Educational Exhibition Company	XIV
National Motion Picture Co	XV
MISCELLANEOUS	
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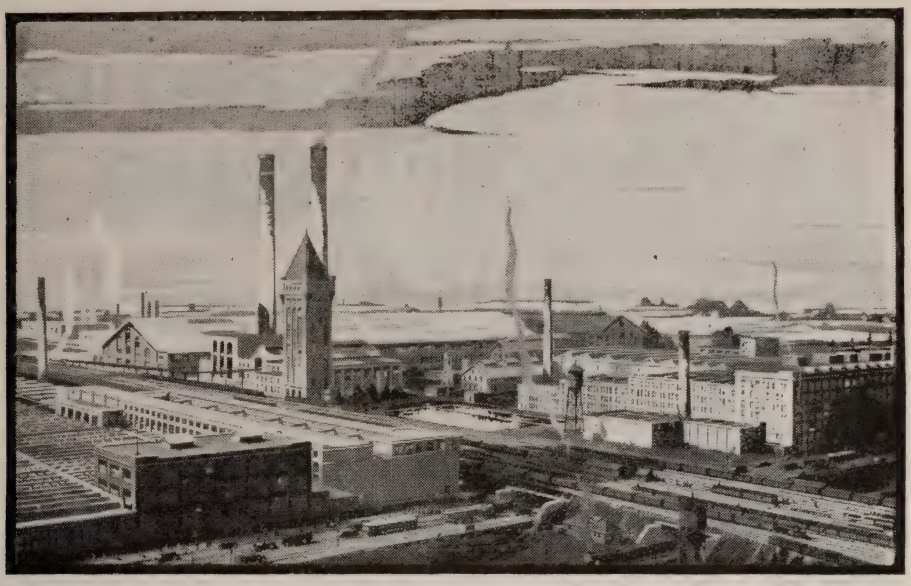
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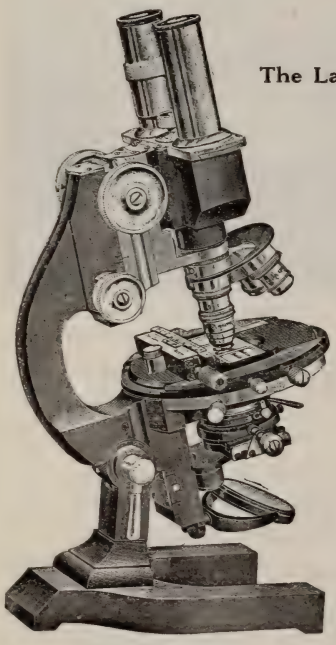
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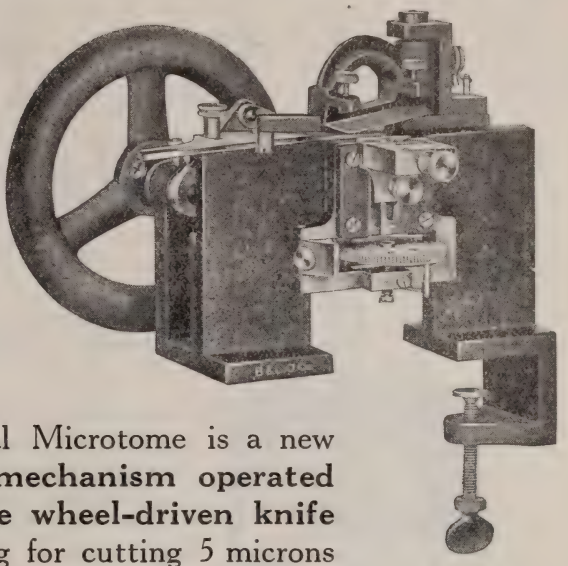
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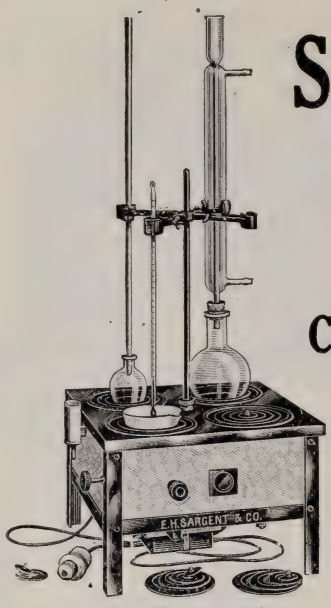
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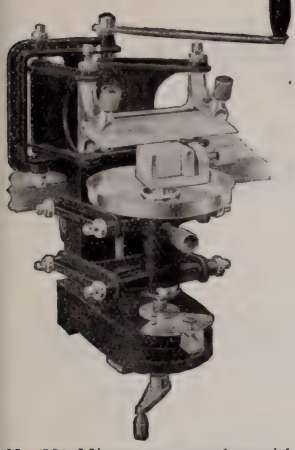
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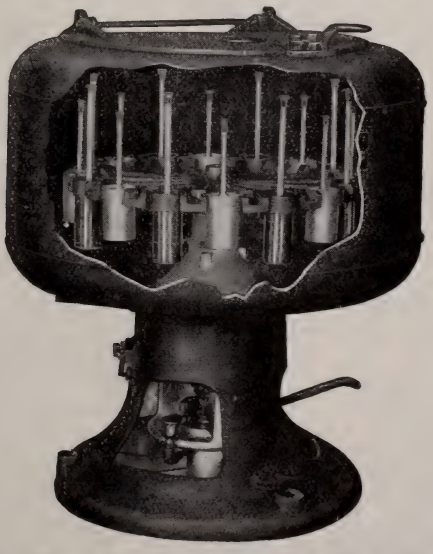
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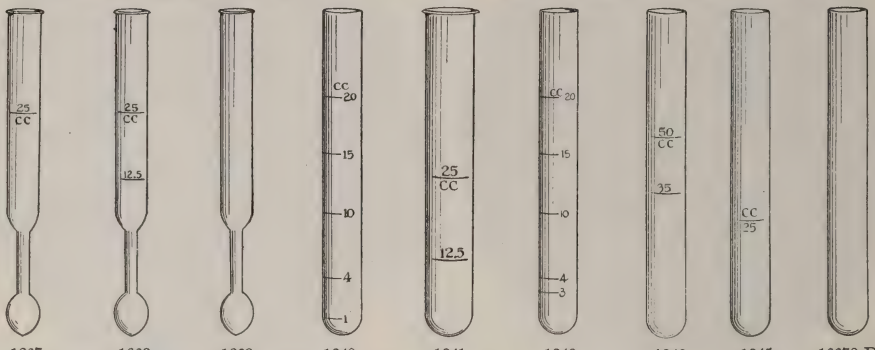
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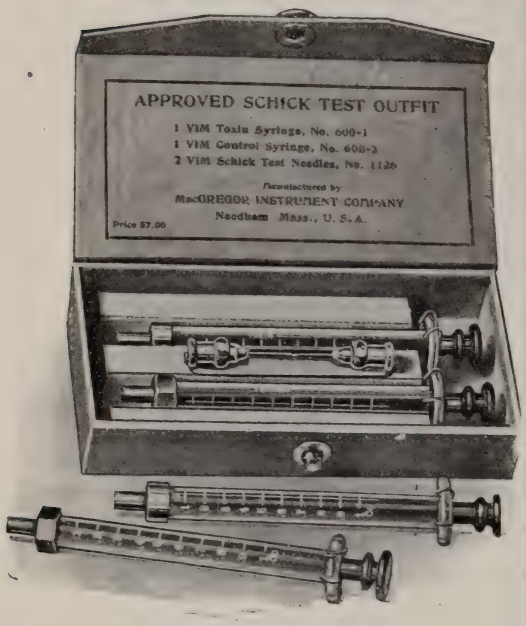
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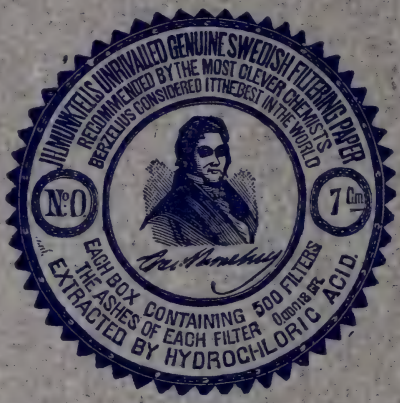
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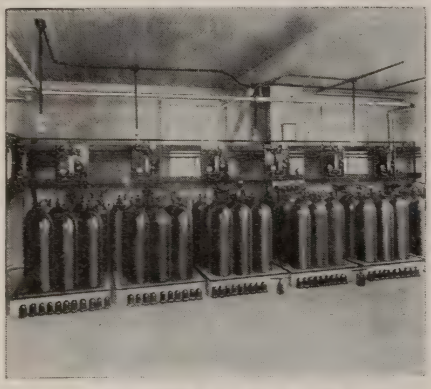
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FEBRUARY, 1922 CONTENTS VOL. XII, No. 2

Page

The Work of the League of Red Cross Societies' Typhus Research Commission to Poland 87
Francis W. Palfrey, M.D.

The Situation Abroad as Regards Typhus Fever and Other Epidemic Diseases and the Possibility of Their Importation into the United States..... 91
Hugh S. Cummings, M.D.

European Health Condition 94
C.-E. A. Winslow, Dr. P. H.

The Prevention of Tuberculosis Based on the Relation of Tuberculosis in Infancy and Childhood to Tuberculosis in Adult Life..... 101
Allen K. Krause, M.D.

The Prevention and Cure of Rickets by Sunlight..... 104
Alfred F. Hess, M.D.

Continued on Page VII

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Continued from Page V

Page

Report of the Committee on Preparation, Packing and Transportation of Foods..... 108
Walter H. Lipman, M.D., Chairman

Report of the Committee on Nutritional Problems (Dried Milks)..... 113
Henry C. Sherman, Ph.D., Chairman

Simplicity in Preparation of Blanks and Forms..... 116
Charles H. Lerrigo, M.D.

A Simple Method for Anaërobic Cultivation in Petri Dishes..... 119
Sterne Morse, M.D., and Nicholas Kopeloff, Ph.D.

Report of the Committee on Bathing Places..... 121
George W. Simons, Jr., Chairman.

Correlation of Stream Pollution Criteria from Studies of the Naugatuck and Hockanum Rivers in Connecticut..... 124
J. Frederick Jackson

Detroit's Experience with Undernourished School Children..... 134
George T. Palmer, Dr. P. H.

First Report of the Committee on Municipal Health Department Practice of the American Public Health Association, (Concluded)..... 138
Louis I. Dublin, Ph.D., Secretary

Editorials:

Pamphleteering and Public Health..... 148
Mobilizing Against Cancer 149

Association News:

List of New Members..... 151
Health Employment Bureau 152
Books and Reports Reviewed..... 153
Public Health Notes 155
Legislation—Federal 164
State Health Notes 166
Industrial Hygiene and Occupational Disease..... 172
Public Health Laboratory Notes 178
Conventions and Conferences.....XXXIV

INDEX TO ADVERTISERS

	Page
BIOLOGICAL PRODUCTS	
Mulford, H. K.	IX
FOOD PRODUCTS	
Borden's Farm Products Company, Inc.	XV
Horlick's Malted Milk Co.	XVI
Mellin's Food Company	V
HELP WANTED	152
INSURANCE CO. SERVICE TO HEALTH OFFICERS	
Metropolitan Life Insurance Co.	VIII
Prudential Insurance Company of America	XI
LABORATORIES	
Bendiner & Schlesinger	XXXIII
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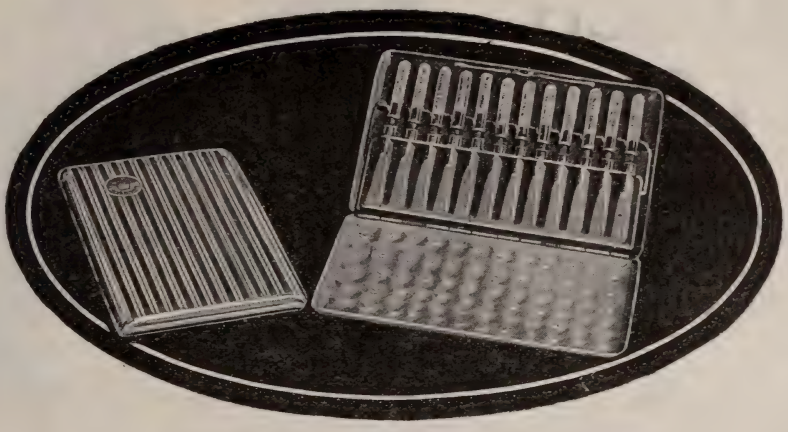
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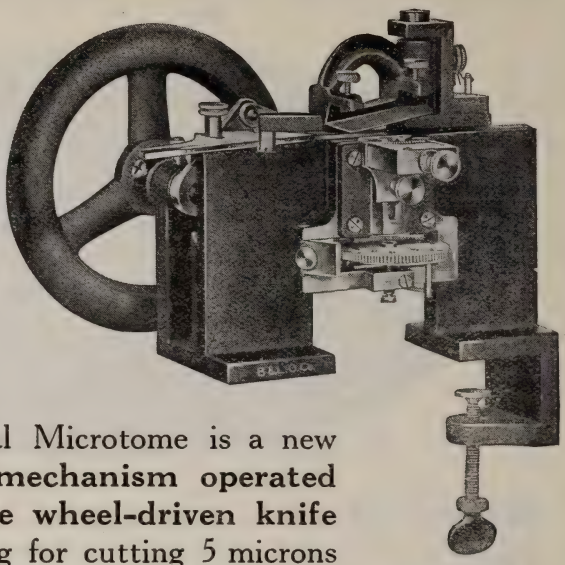
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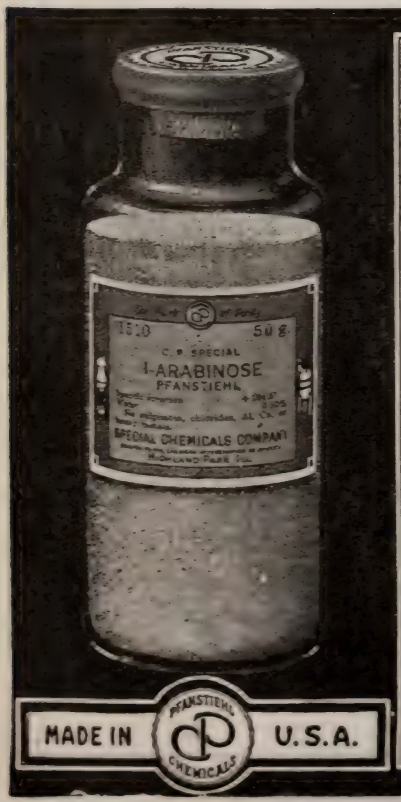
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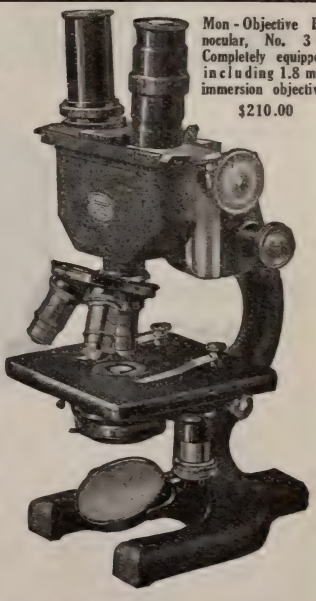
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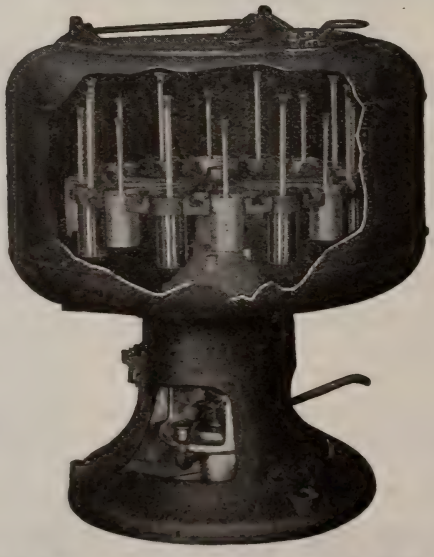
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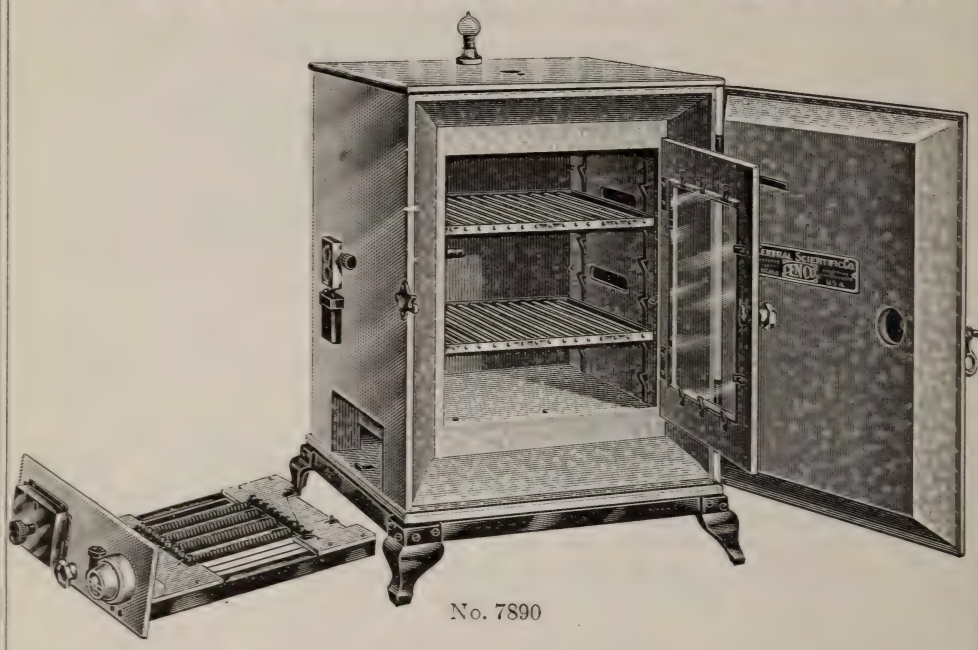
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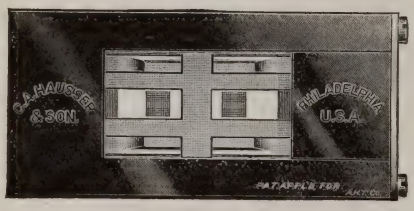
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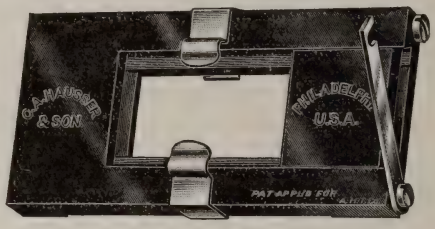
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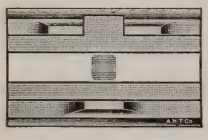
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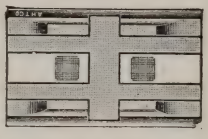
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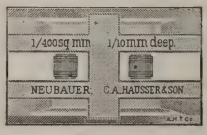
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CONTENTS

Page

The Campaign Against Yellow Fever in Mexico 131
Francisco Castillo Nájera, M.D.

The Present Sanitary Conditions at Guayaquil with Special Reference to Yellow Fever 188
Carlos V. Coello, M.D.

Notes on the Use of Fresh Water Fish as Consumers of Mosquito Larvae in Containers Used in the Home 193
M. E. Connor, M.D.

Work of the Massachusetts-Halifax Health Commission 195
B. Franklin Royer, M.D.

Import Diseases as They Affect the Work of the New York City Health Department 202
Royal S. Copeland, M.D.

Continued on Page VII

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Continued from Page V

Page

Functions of the Public Health Laboratory in Controlling the Import Diseases..... 204
William H. Park, M.D.

Report of the Committee on School Health Program..... 207
C. E. Turner, M.A., C.P.H.

Fatigue in Industry..... 212
Eugene Lyman Fisk, M.D.

The Relation of Public Health Nursing to Other Phases of Work of the State Board of Health, with Special Reference to That of the Division of Child Hygiene... 218
Rose M. Ehrenfeld, R.N.

The New Garbage Reduction Works at Rochester, N. Y..... 222
Edwin A. Fisher.

The Value of Coöperation Between the Food Manufacturer and the Food Official... 225
John P. Street, M.S.

Editorials:

An Interesting Step in China..... 228

Life Saving or Public Health?..... 229

The New Constitution of the A. P. H. A..... 230

Constitution and By-Laws of the American Public Health Association..... 231

Association News:

List of New Members..... 234

Health Employment Bureau..... 234

Book Reviews..... 235

The Health Activities of the United States Government..... 237

Public Health Notes..... 239

Legislation, Federal..... 247

Legislation, State..... 252

State Health Notes..... 254

Industrial Hygiene and Occupational Disease..... 261

Public Health Laboratory Notes..... 263

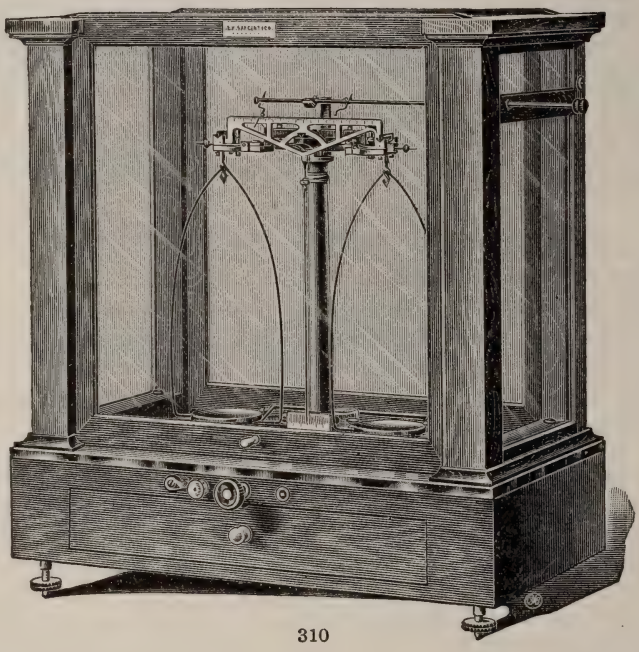
Conferences and Conventions..... 268

INDEX TO ADVERTISERS

	Page
FOOD PRODUCTS	
Borden's Farm Products Company, Inc.	XIV
Horlick's Malted Milk Co.	XIV
Mellin's Food Company	V
HELP WANTED	234
INSURANCE CO. SERVICE TO HEALTH OFFICERS	
Metropolitan Life Insurance Co.	VI
LABORATORIES	
Bendiner & Schlesinger	XVII
Boston Bio-Chemical Laboratories	XVII
Industrial Health Conservancy Laboratories	XVII
Pease Laboratories, Inc.	XVII
LABORATORY APPARATUS AND SUPPLIES	
Bausch & Lomb Optical Co.	X
Central Scientific Company	XVI
Digestive Ferments Company	Back Cover
Eimer & Amend	XIX
International Equipment Company	XII
Lehmkuhl, H. W.	XIV
Leitz, Inc., E.	XIII
Sargent & Company, E. H.	VIII
Spencer Lens Company	XIII
Thomas Company, Arthur H.	IV
Will Corporation	XII
LIQUID CHLORINE AND APPARATUS	
Wallace & Tiernan Co., Inc.	II
POSITIONS WANTED	235
PUBLIC HEALTH COURSES	
Harvard Medical School	XV
University of Pennsylvania	XV
Yale University	XV
PUBLISHERS	
Mosby Company, C. V.	XI
SANITARY ENGINEERS	
Fuller & McClintock	XVII
Metcalf & Eddy	XVII
STANDARD HEALTH LITERATURE	
A. P. H. A. Publications	XVII, XVIII
STEREOPTICONS AND MOTION PICTURES	
Educational Exhibition Company	XIV
National Motion Picture Co.	XV
MISCELLANEOUS	
Amer. Tel. & Tel. Company	IX

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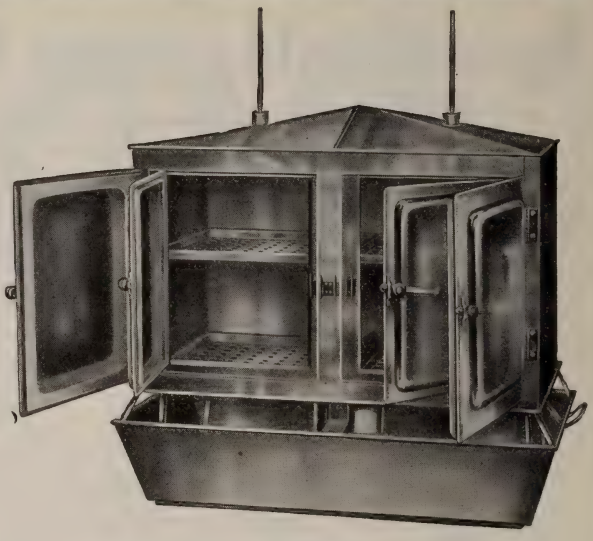
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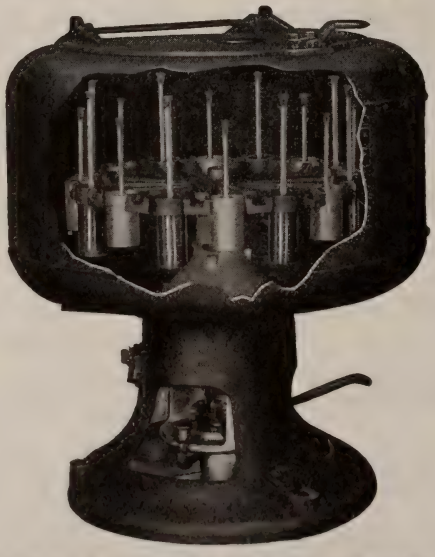
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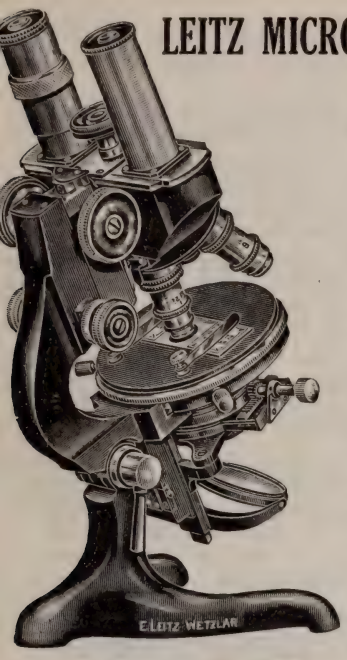
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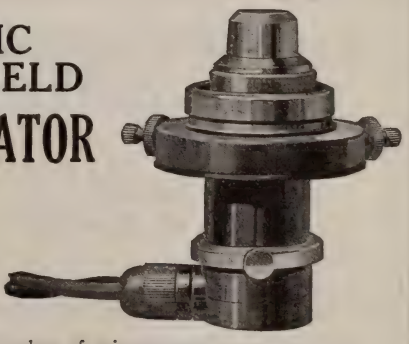
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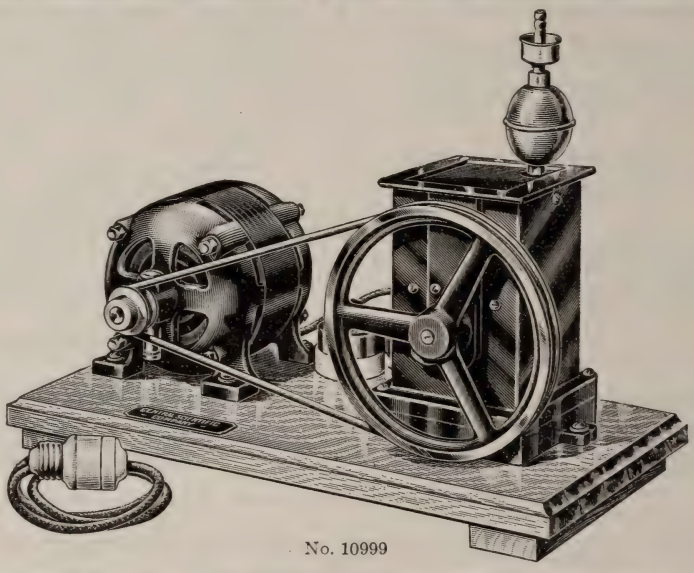
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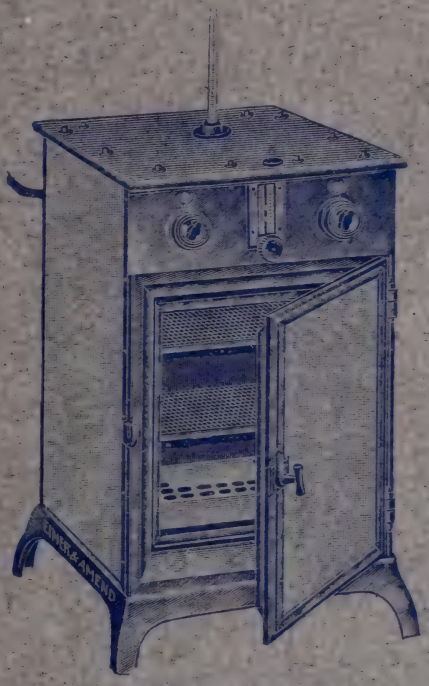
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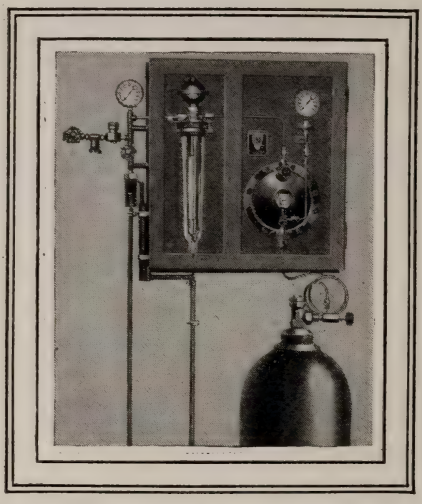
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APRIL, 1922 CONTENTS VOL. XII, No. 4

Page

Symposium on Motion Pictures 269

Introductory Remarks, E. G. Routzahn, Chairman 269

Question I. Should There Be Any Difference in the Type of Picture Produced for Classroom Use and That for Popular Education? 270

Discussed by Professor C. E. Turner.

Question II. What Standard Should Be Set for the Pictures Used by Health Agencies? 272

Discussed by Stanley Osborn, M.D., and Carlyle Ellis.

Question III. What Are the Needs in Health Motion Pictures That Are Not Met at Present? 275

Discussed by Ernst C. Meyer, Ph.D., and H. E. Kleinschmidt, M.D.

Continued on Page VII

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Continued from Page V

Page

Question IV. How Can Health Departments and Health Organizations Work Together to Have Suitable Pictures Produced? ... 277
Discussed by P. P. Jacobs, Ph.D.

Symposium on How to Further Progress in Health Education and Publicity ... 279

Introductory Remarks, E. G. Routzahn, Chairman ... 279

Question I. What is Being Done to Study Methods in Health Education and Publicity for Adults and Children? ... 280
Discussed by W. F. Snow, M.D., Courtenay Dinwiddie, W. L. Dealey, Ph.D., and Mary Swain Routzahn.

Question II. What are Some of the Problems to Be Solved? ... 286
Discussed by B. R. Rickards and Marie L. Rose.

Question III. What Can Be Done Coöperatively During This Year to Study Methods and Materials? ... 287
Discussed by Lawrence Marcus.

Question IV. What Can Be Done at the Next Convention to Advance Efficient Work in Health Education and Publicity? ... 288
Discussed by W. A. Evans, M.D.

A Report of the Committee on Retail Distribution and Marketing of Foods ... 290
Willard E. Ward, Chairman.

Food and Health. Abstract of Paper ... 294
Henry C. Sherman, Ph.D.

The Healthful Home ... 295
Ira S. Wile, M.D.

Chemical and Biological Reactions in the Dorr-Peck Tank ... 299
A. M. Buswell, A. A. Brensky and S. L. Neave.

Community Organization in the Anti-tuberculosis Campaign ... 311
Godias J. Drolet.

Report of the Committee on Rural Health Administration ... 316
K. E. Miller, M.D., Chairman.

Objectionable Forms of Penny Candies ... 318
Charles H. LaWall, Ph.M.

The Treatment of Swimming Pool Water with Ultraviolet Rays ... 320
W. F. Walker.

Dental Work as a Prophylactic Measure in Improving the Physical Condition of Employees ... 325
Thaddeus P. Hyatt, D.D.S.

Diphtheria Control ... 328
B. E. Roberts, M.D.

Editorials:

A Health Publicity Project ... 330
The Status Quo in the Narcotic Situation ... 331
Looking Toward the Cleveland Meeting ... 332

Association News:

List of New Members ... 333

Health Employment Bureau ... 333
Books and Reports Reviewed ... 334
Public Health Notes ... 337
Legislation—Federal ... 345
Legislation—State ... 347
State Health Notes ... 349
Industrial Hygiene and Occupational Disease ... 355
Public Health Laboratory Notes ... 359
Conferences and Conventions ... 365

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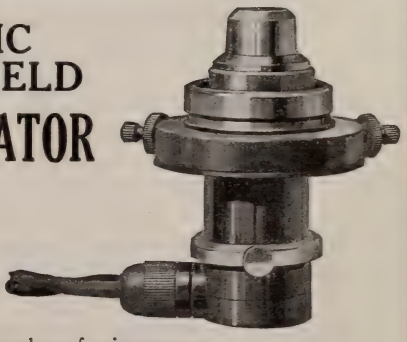
INDEX TO ADVERTISERS

	Page
BIOLOGICAL PRODUCTS	
Mulford, H. K.	II
FOOD PRODUCTS	
Borden's Farm Products Company, Inc.	XV
Horlick's Malted Milk Co.	XIII
Mellin's Food Company	V
HELP WANTED	333
INSURANCE CO. SERVICE TO HEALTH OFFICERS	
Metropolitan Life Insurance Co.	VIII
LABORATORIES	
Abbott Laboratories	XIII
Bendiner & Schlesinger	364
Boston Bio-Chemical Laboratories	364
Industrial Health Conservancy Laboratories	364
Pease Laboratories, Inc.	364
LABORATORY APPARATUS AND SUPPLIES	
Bausch & Lomb Optical Co.	X
Central Scientific Company	XVI
Digestive Ferments Company	Back Cover
Eimer & Amend	XVIII
Greiner Company, Emil	XII
International Equipment Company	XIV
Lehmkuhl, H. W.	XIII
Leitz, Inc., E.	XII
Sargent & Company, E. H.	XI
Special Chemicals Company	XIV
Spencer Lens Company	IX
Thomas Company, Arthur H.	VI
LIQUID CHLORINE AND APPARATUS	
Wallace & Tiernan Co., Inc.	IV
POSITIONS WANTED	333
PUBLIC HEALTH COURSES	
Harvard Medical School	XV
SANITARY ENGINEERS	
Fuller & McClintock	364
Metcalf & Eddy	364
STANDARD HEALTH LITERATURE	
A. P. H. A. Publications	XVII, 364
STEREOPTICONS AND MOTION PICTURES	
Educational Exhibition Company	XV
National Motion Picture Co.	XV

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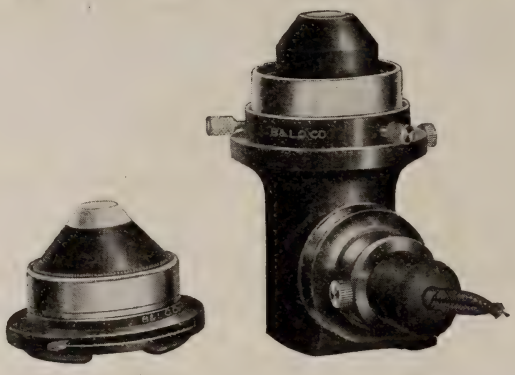
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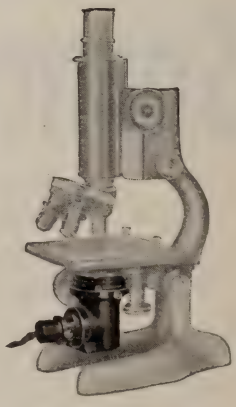
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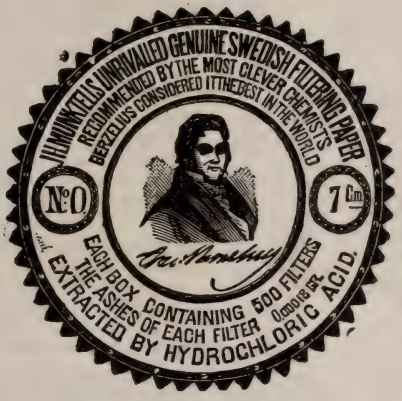
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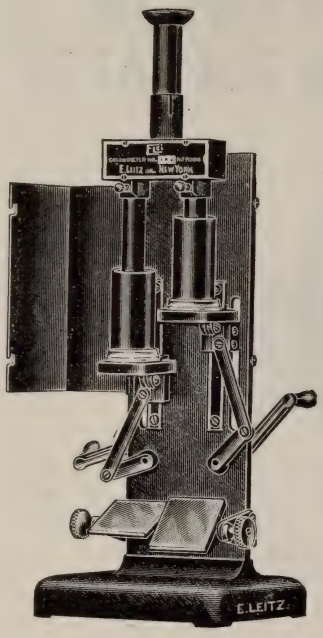
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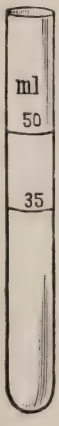
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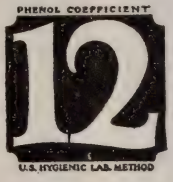
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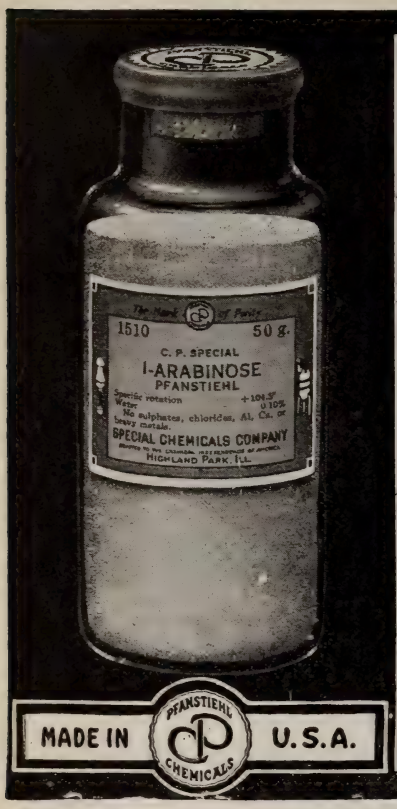
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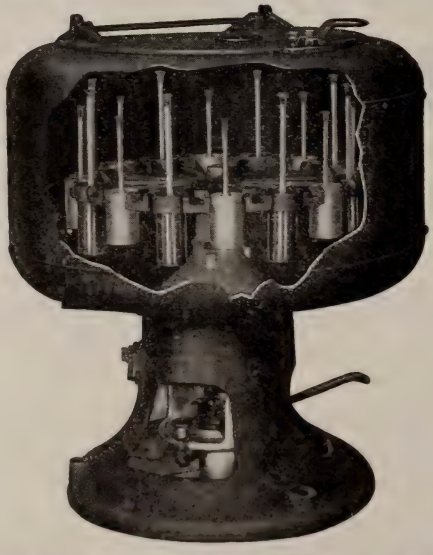
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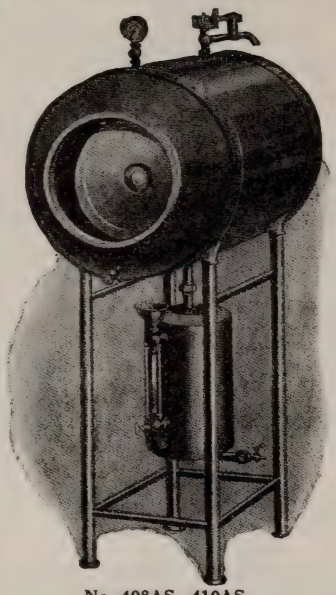
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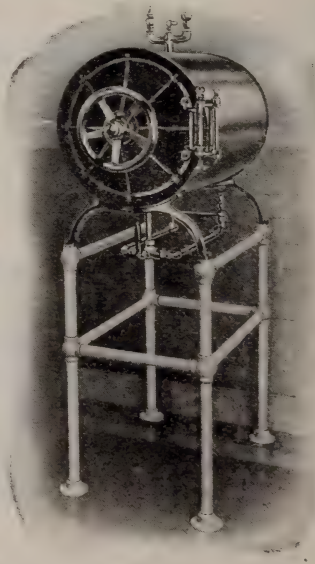


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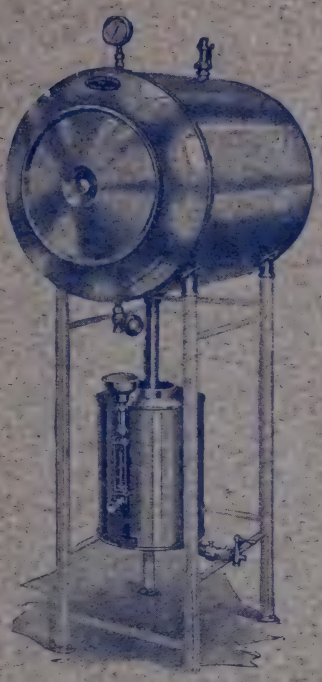
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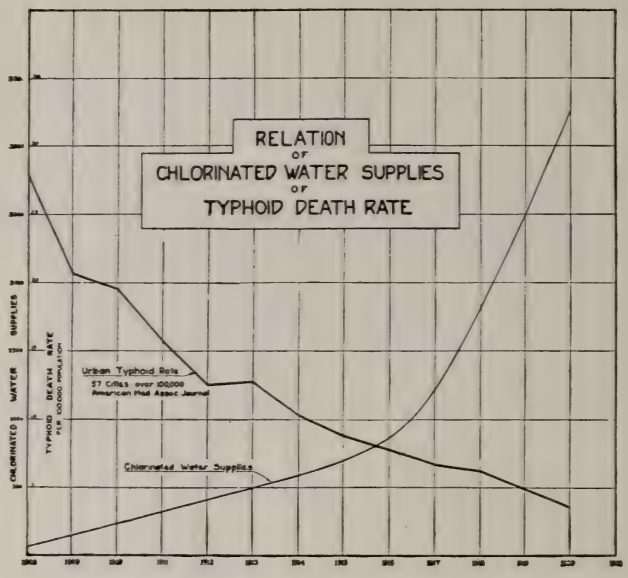
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MAY, 1922 CONTENTS VOL. XII, No. 5

Page

Occupational Therapy 367
John W. Brannan, M.D.

Anemia in Professional Donors—A Study in a New Phase of Public Health 376
L. W. Famulener, M.D.

The Mortality of the Two Sexes in the First Year of Life with Special Reference to Whooping Cough 378
S. J. Holmes, Ph.D.

Report of Committee on Cold Storage 382
Peter H. Bryce, M.D., Chairman.

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Continued on Page VII

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Continued from Page V

Page

Cremation Versus Burial—A Plea for More Sanitary and More Economical Disposition of our Dead 389
S. Adolphus Knopf, M.D.

Report of Committee on Venereal Diseases 400
William F. Snow, M.D., Chairman.

How Can We Best Solve the Midwifery Problem? 405
Charles Edward Ziegler, A.M., M.D., F.A.C.S.

Public Health Work in Ceylon 414
S. T. Gunasekara, L.R.C.P., M. R. C. S.

Industrial Wastes in Relation to Water Supplies 420
Wellington Donaldson.

Editorials:
"Sanitarians" 422
Home Cure Versus "Change of Climate" 423

Letters to the Editor 425

Association News:
List of New Members 428

Health Employment Bureau 428

Books and Reports Reviewed 429

Public Health Notes 432

Legislation—Federal 441

Legislation—State 444

State Health Notes 450

Industrial Hygiene and Occupational Disease 457

Public Health Laboratory Notes 459

Conferences and Conventions 463

INDEX TO ADVERTISERS

	Page
FOOD PRODUCTS	
Borden's Farm Products Company, Inc.	XII
Horlick's Malted Milk Co.	XIII
Mellin's Food Company	V
HELP WANTED	428
INSURANCE CO. SERVICE TO HEALTH OFFICERS	
Metropolitan Life Insurance Co.	VI
LABORATORIES	
Bendiner & Schlesinger	XVII
Boston Bio-Chemical Laboratories	XVII
Industrial Health Conservancy Laboratories	XVII
Pease Laboratories, Inc	XVII
LABORATORY APPARATUS AND SUPPLIES	
Bausch & Lomb Optical Co	X
Central Scientific Company	XIV
Digestive Ferments Company	Back Cover
Eimer & Amend	XIX
International Equipment Company	XII
Leitz, Inc. E	XI
Sargent & Company, E. H.	VIII
Spencer Lens Company	XI
Thomas Company, Arthur H.	II
LIQUID CHLORINE AND APPARATUS	
Wallace & Tiernan Co., Inc.	IV
POSITIONS WANTED	429
PUBLIC HEALTH COURSES	
Harvard Medical School	XIII
Johns Hopkins University	XVI
University of Pennsylvania	XVI
Yale University	XIII
SANITARY ENGINEERS	
Fuller & McClintock	XVII
Metcalf & Eddy	XVII
STANDARD HEALTH LITERATURE	
A. P. H. A. Publications	XVI, XVII, XVIII
STEREOPTICONS AND MOTION PICTURES	
Educational Exhibition Company	XII
National Motion Picture Company	XIII
MISCELLANEOUS	
Amer. Tel. & Tel. Company	IX

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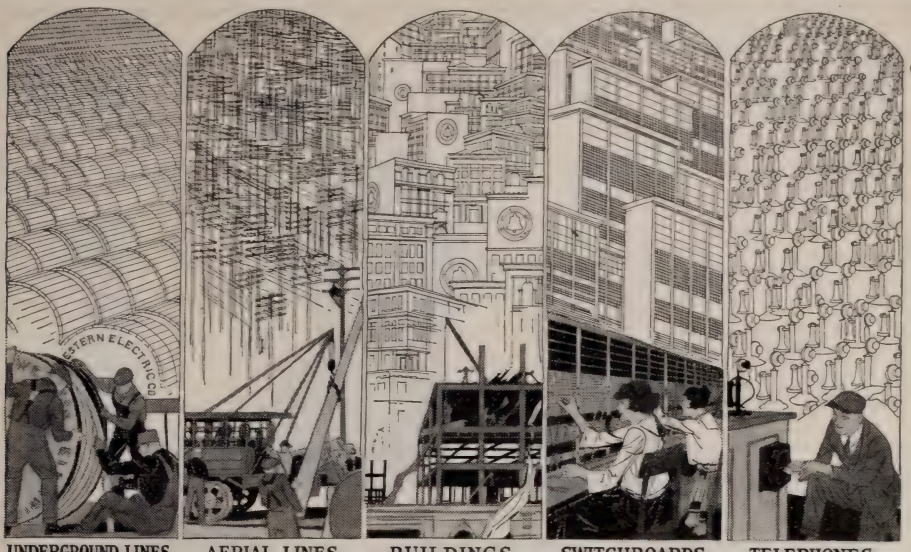
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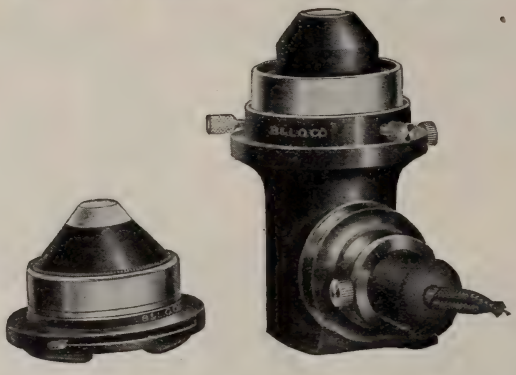
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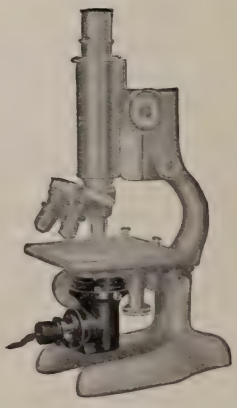
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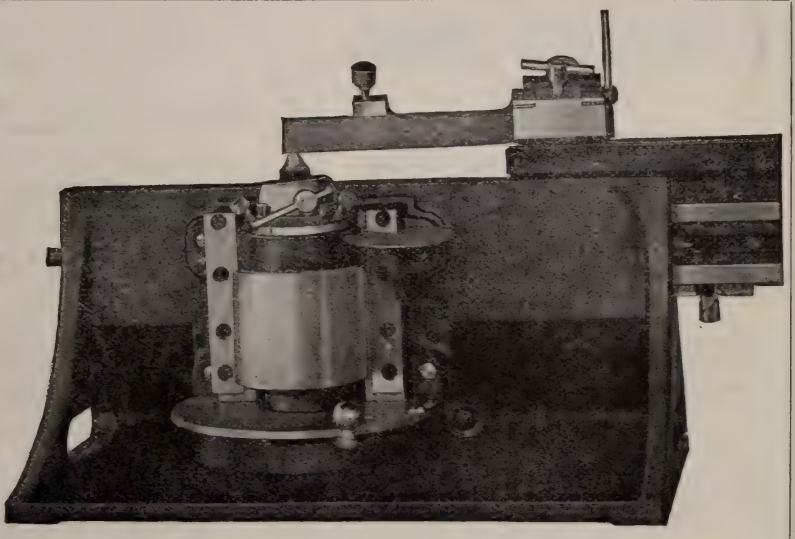
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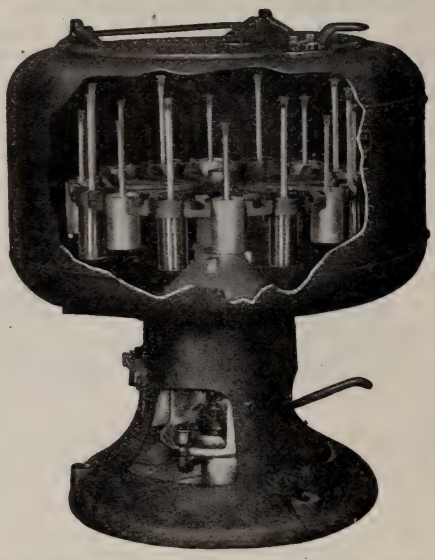
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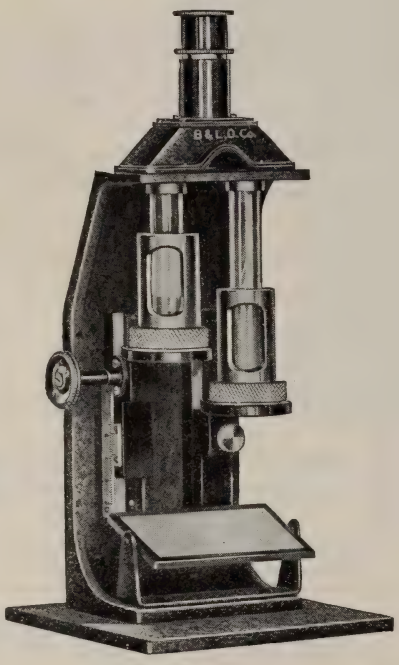
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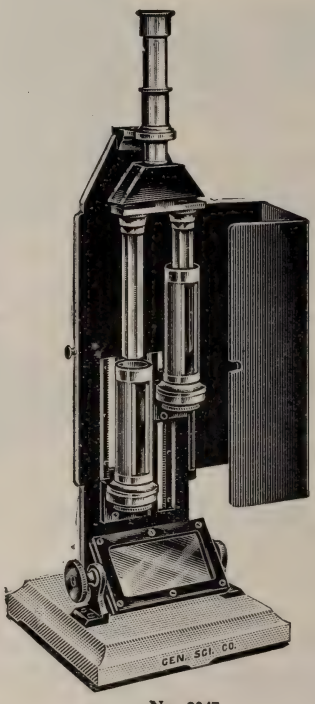
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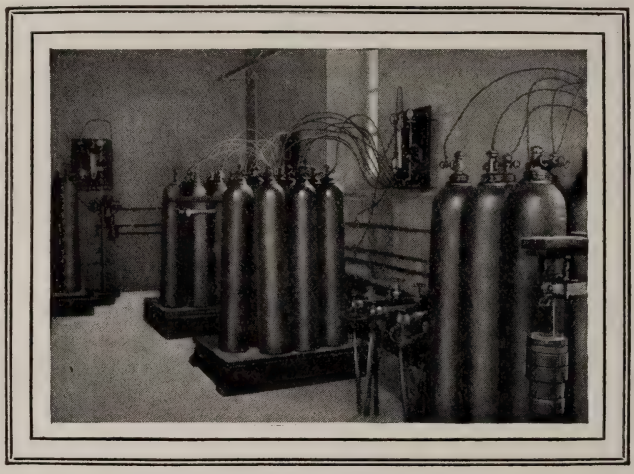
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JUNE, 1922 CONTENTS VOL. XII, No. 6

Page

School Health Supervision Based Upon Age and Sex Incidence of Physical Defects. 465
S. Josephine Baker, M.D., D.P.H.

Influenzal Meningitis 476
T. M. Rivers, M.D.

A Study of the Practical Value of the Frost Little Plate Method in the Routine Colony Count of Milk Samples 478
Hazel M. Hatfield, M.D., and William H. Park, M.D.

Bottled Beverages and Soda Fountain Sirups..... 487
W. W. Skinner, D.Sc.

The Work of the American Bakers Association in the Development of a Sanitary Code for the Baking Industry..... 494
Harry E. Barnard, Ph.D.

Continued on Page VII

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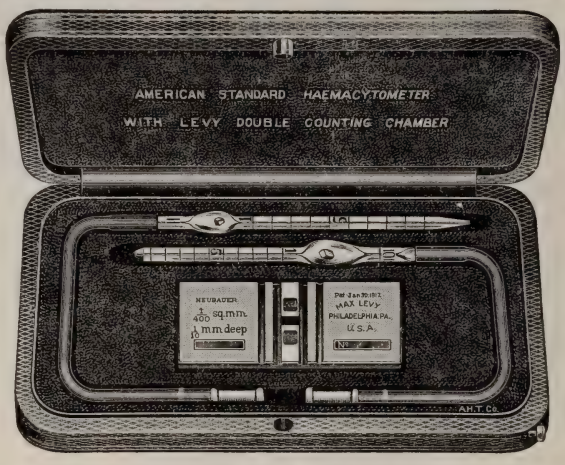
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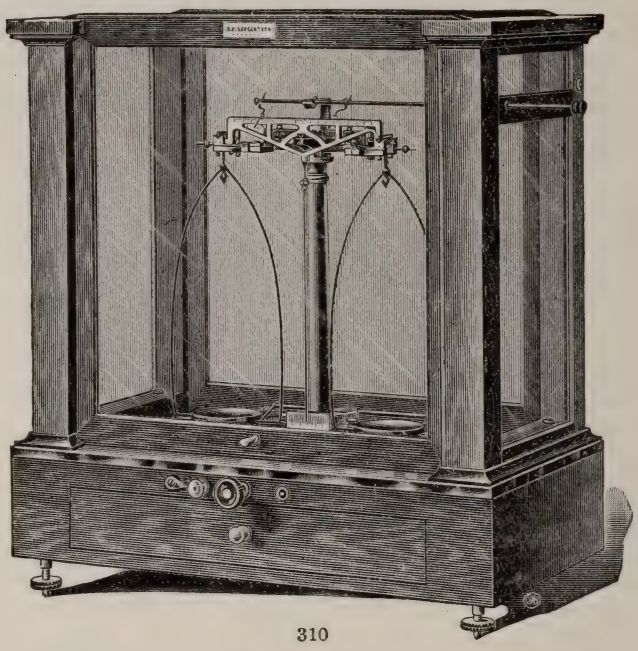
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Continued from Page V

	Page
Reasons for the Failure of Our Methods to Control Diphtheria. J. W. Robinson, M.D.	497
Report of the Committee on Standard Preparation of Diphtheria Antitoxin. P. G. Heineman, Ph.D., Chairman.	503
The Bacterial Action of Dry Cleaning. Lloyd E. Jackson.	507
Methods Suggested for the Extermination of Mosquitoes. William V. Becker.	509
The American Red Cross Diet in the Famine Districts of China. Hartley Clarke Embrey.	514
Contributors to This Issue	515
Editorials:	
Make This Summer Less Dangerous	516
One Woman's Life	519
Jules Schevitz, 1897-1922	520
Letters to the Editor	521
Association News:	
List of New Members	522
Health Employment Bureau	522
Books and Reports Reviewed	524
List of Bibliographies	525
Public Health Notes	528
Legislation—Federal	535
Legislation—State	538
State Health Notes	542
Industrial Hygiene and Occupational Disease	554
Public Health Laboratory Notes	557
Conferences and Conventions	561

INDEX TO ADVERTISERS

	Page
BIOLOGICAL PRODUCTS	
Mulford, H. K.	IX
FOOD PRODUCTS	
Borden's Farm Products Company, Inc.	XIII
Horlick's Malted Milk Co.	XIII
Mellin's Food Company	V
HELP WANTED	522
INSURANCE CO. SERVICE TO HEALTH OFFICERS	
Metropolitan Life Insurance Co.	II
LABORATORIES	
Bendiner & Schlesinger	XVII
Pease Laboratories, Inc.	XVII
LABORATORY APPARATUS AND SUPPLIES	
Bausch & Lomb Optical Co.	X
Central Scientific Company	XIV
Digestive Ferments Company	Back Cover
Eimer & Amend	XIX
Greiner Company, Emil	XII
International Equipment Company	XIII
Leitz, Inc., E.	XI
Sargent & Company, E. H.	VIII
Special Chemicals Company	XII
Spencer Lens Company	XI
Thomas Company, Arthur H.	VI
LIQUID CHLORINE AND APPARATUS	
Wallace & Tiernan Co., Inc.	IV
POSITIONS WANTED	523
PUBLIC HEALTH COURSES	
Johns Hopkins University	XVI
SANITARY ENGINEERS	
Fuller & McClintock	XVII
Hill & Ferguson	XVII
Metcalf & Eddy	XVII
STANDARD HEALTH LITERATURE	
A. P. H. A. Publications	XVI, XVII, XVIII
STEREOPTICONS AND MOTION PICTURES	
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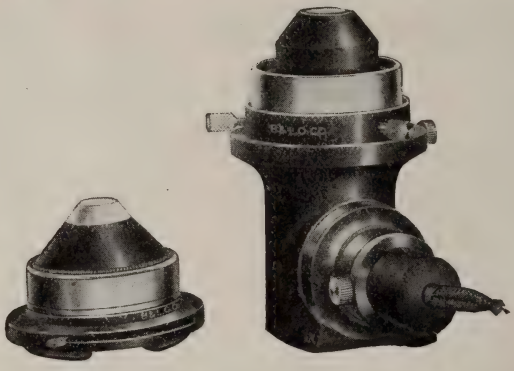
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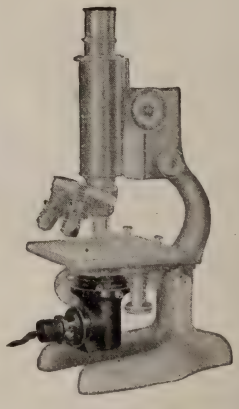
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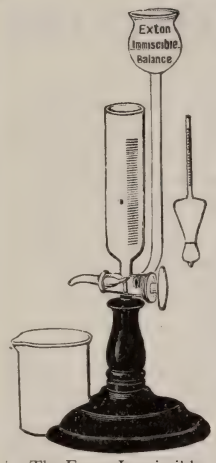
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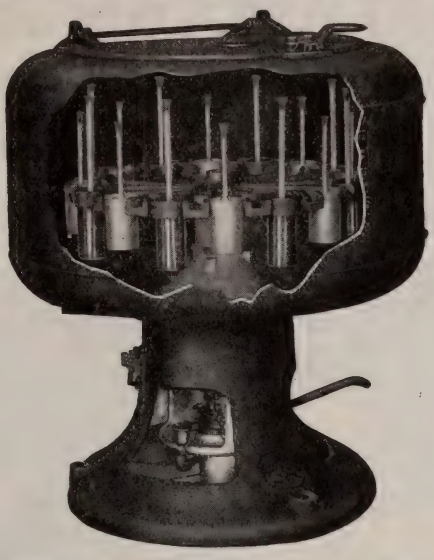
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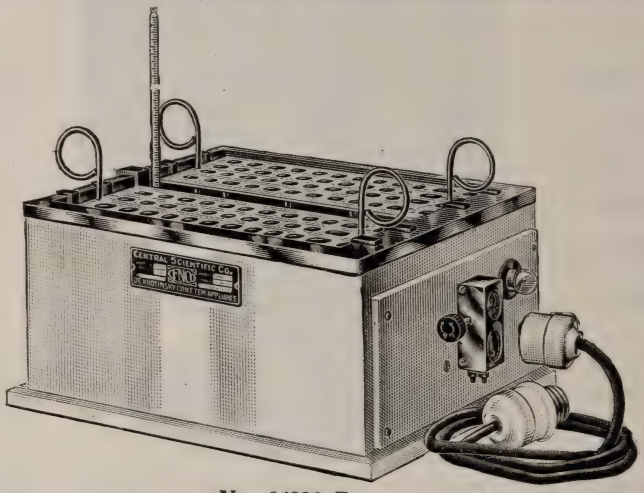
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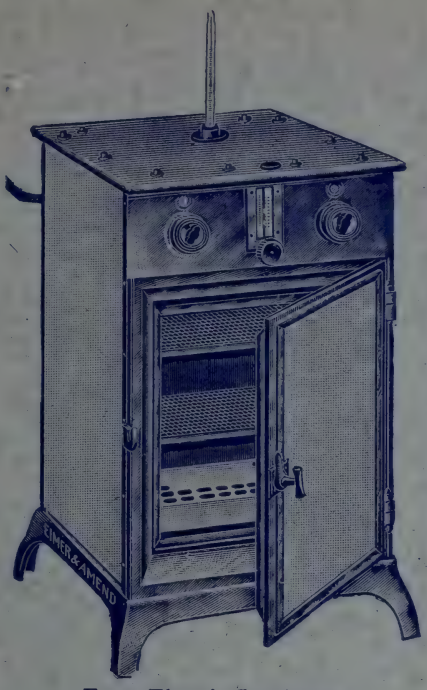
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JULY, 1922 VOL. XII, No. 7

CONTENTS

Page

Two Twilight Zones in Health Administration 563
E. R. Kelley, M.D.

Recent Applications of the Principles of Nutrition 568
H. Violle, M.D. and Theodore C. Merrill, M.D.

Report of the Committee on Standard Methods for the Bacteriological Examination of Shellfish 574
Payn B. Parsons, M.D., Chairman.

Report of the Committee on Registration Affairs 576
William H. Davis, M.D., Chairman.

Milk Inspection (Chapter from Report of Committee on Municipal Health Department Practice) 577

Continued on Page VII

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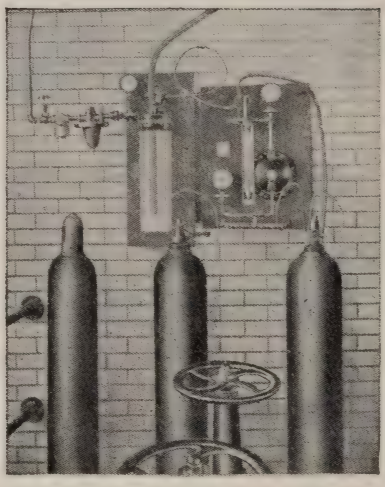
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Continued from Page V

Page

Revised Report of the Committee on Problems of Canning 591
W. D. Bigelow, Chairman.

Results of a Health Program in a Summer Play School 594
Henry Harap.

A New Venture in School Medical Inspection 599
George T. Palmer, D.P.H.

The Determination of the Value of Certain Soaps in Disinfecting Wall and Floor Surfaces 602
John R. Conover, M.D. and John L. Laird, M.D.

Some Observations on the Sanitary Condition of Confections 605
Fred W. Tanner and Esther Davis.

The Effect of Peptone Upon the Toxigenic Property of B. Diphtheriae No. 8 608
Harriet Leslie Wilcox.

Contributors to This Issue 614

Editorials:

National Health Days 616

The City of the Future 616

A Tariff on Health 618

Dr. John Nathaniel McCormack, 1847-1922 619

Letters to the Editor 619

Association News:

List of New Members 620

Health Employment Bureau 620

Books and Reports Reviewed 621

Public Health Notes 625

Legislation—Federal 635

Legislation—State 638

State Health Notes 639

Industrial Hygiene and Occupational Disease 650

Public Health Laboratory Notes 654

Conferences and Conventions 657

INDEX TO ADVERTISERS

Page

BIOLOGICAL PRODUCTS

Gilliland Laboratories II

FOOD PRODUCTS

Borden's Farm Products Company, Inc. XII
Horlick's Malted Milk Co. XII
Mellin's Food Company V

INSURANCE CO. SERVICE TO HEALTH OFFICERS

Metropolitan Life Insurance Co. IV

LABORATORIES

Pendiner & Schlesinger XVII
Pease Laboratories, Inc. XVII

LABORATORY APPARATUS AND SUPPLIES

Bausch & Lomb Optical Co. X
Central Scientific Company XIV
Digestive Ferments Company ..... Back Cover
Eimer and Amend XIX
International Equipment Co. XII
Leitz, Inc., E. XIII
Sargent & Company, E. H. IX
Spencer Lens Company XIII
Thomas Company, Arthur H. VIII

LIQUID CHLORINE AND APPARATUS

Wallace & Tiernan Co., Inc. VI

POSITIONS WANTED 620

PUBLIC HEALTH COURSES

Johns Hopkins University XV
University of Pennsylvania 658
Yale University XV

SANITARY ENGINEERS

Fuller & McClintock XVII
Hill & Ferguson XVII
Metcalf & Eddy XVII

PUBLICATIONS

A. P. H. A. Publications ..... XVII, XVIII
Public Health Nurse XVI

STEREOPTICONS AND MOTION PICTURES

Educational Exhibition Company XV
National Motion Pictures Co. XV

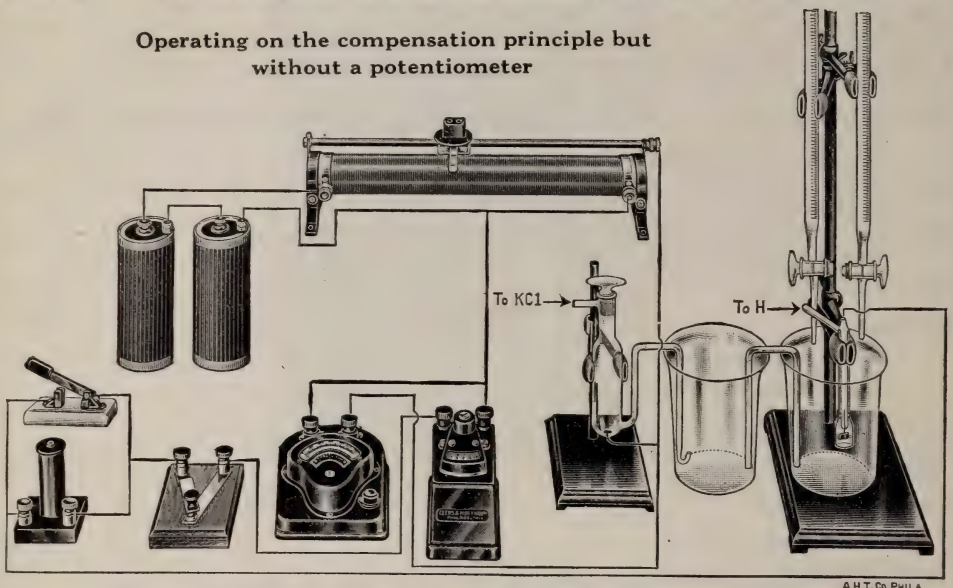
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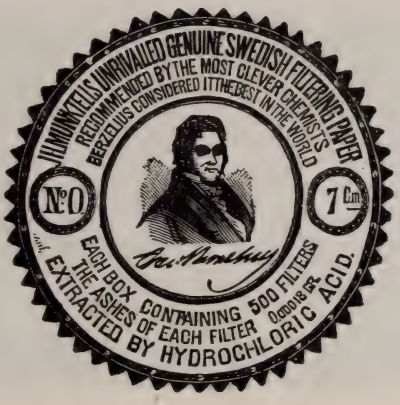
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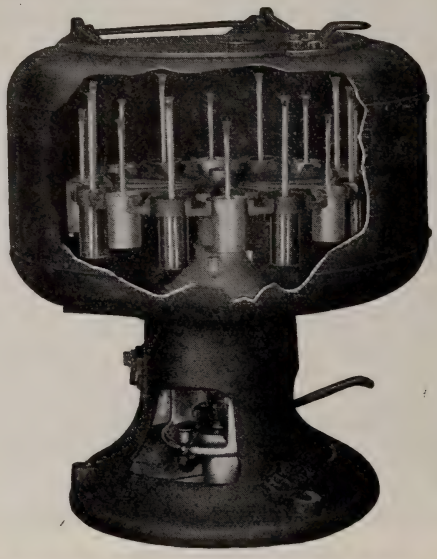
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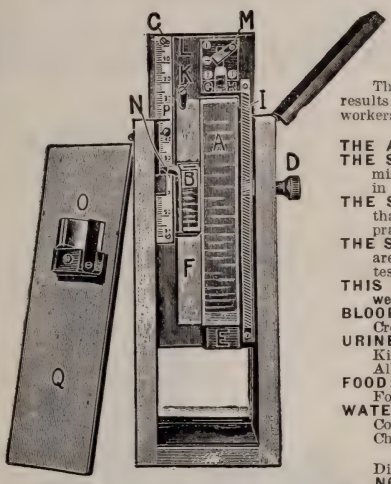
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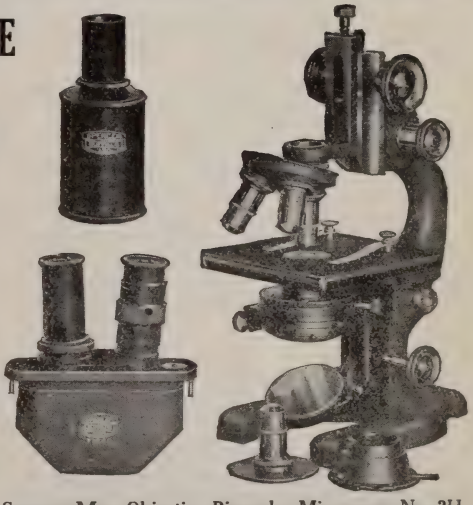
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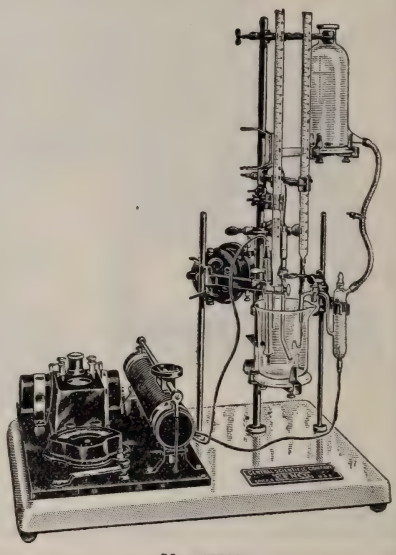
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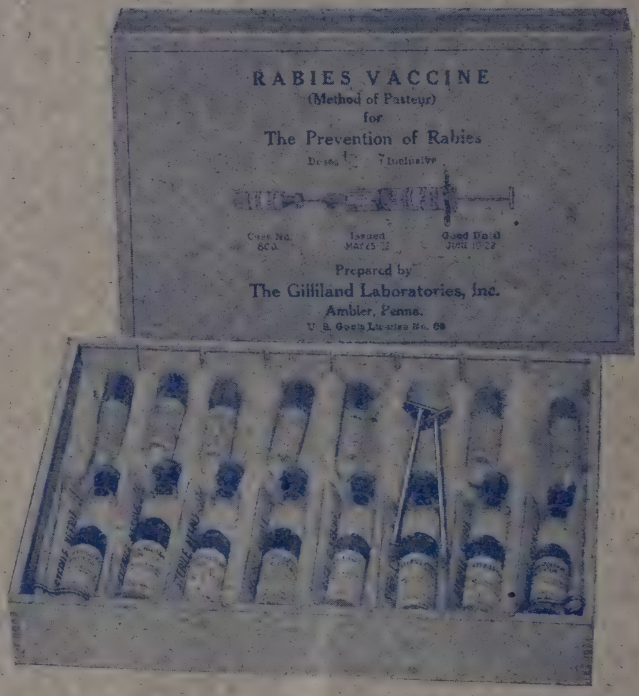
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AUGUST, 1922 CONTENTS VOL. XII, No. 8

Page

The Relation of Contaminated Rations to the Presence of C. Botulinum in the Milk of Lactating Animals 659
Robert Graham, Ph.D., Herman Schwarze and I. B. Boughton.

Diagnostic Chemistry as a Routine Function of a State Laboratory 665
Stephen De M. Gage and Edith Earle.

Proper Cleansing of Glassware and Other Utensils in Public Drinking Places 669
Anna I. van Saun, Ada W. Bancroft and James J. O'Gorman.

Some Fundamentals in World Health Work 674
George E. Vincent, Ph.D.

Continued on Page VII

The Management of an Infant's Diet

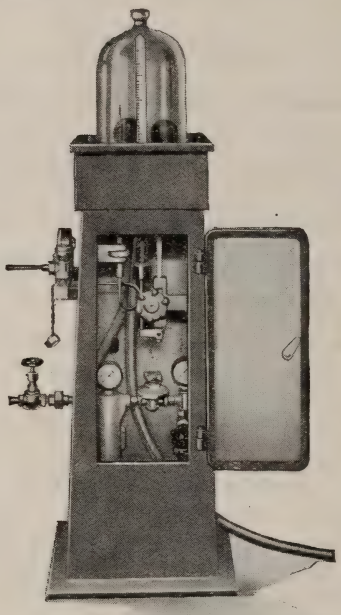
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Continued from Page V

Page

Public Health Nursing Service in a State Department of Health 675
Robert G. Paterson, Ph.D.

Public Health Conserved Through the Enforcement of Postal Fraud Laws 678
Lyman F. Kebler, M.D.

Health Bookkeeping in the East Harlem Health Center 683
Myra M. Hulst.

How One Rural County Secured an Efficient Health Department 690

Report of the Committee on Salary Standards 693
Carroll Fox, M.D., Chairman.

Editorials:
Social Work and Public Health 702
An Error of Omission 704

Dr. E. B. Starr 705

Association News:
List of New Members 706

Health Employment Bureau 706

Books and Reports Reviewed 708

Public Health Notes 711

Legislation—Federal 720

State Health Notes 724

Public Health Laboratory Notes 732

Conferences and Conventions 736

INDEX TO ADVERTISERS

Page

BIOLOGICAL PRODUCTS
Mulford, H. K XX
Gilliland Laboratories II

FOOD PRODUCTS
Borden's Farm Products Company of Illinois XIII
Horlick's Malted Milk Co XIII
Mellin's Food Company V

HELP WANTED 706

INSURANCE CO. SERVICE TO HEALTH OFFICERS
Metropolitan Life Insurance Co IV

LABORATORIES
Abbott Laboratories XV
Bendiner & Schlesinger XIX
Pease Laboratories, Inc XIX

LABORATORY APPARATUS AND SUPPLIES
Bausch & Lomb Optical Co X
Central Scientific Co XIV
Digestive Ferments Co XXII
Eimer and Amend XXI
Greiner Company, The Emil XI

Page

International Equipment Co XI
Leitz, Inc., E XII
Sargent & Company, E. H IX
Spencer Lens Co XIII
Thomas Company, Arthur H VIII
Will Corporation XII

LIQUID CHLORINE AND APPARATUS
Wallace & Tiernan Co., Inc VI

POSITIONS WANTED 707

PUBLIC HEALTH COURSES
Johns Hopkins University XVIII

SANITARY ENGINEERS
Fuller & McClintock XIX
Hill & Ferguson XIX
Metcalf & Eddy XIX

PUBLICATIONS
A. P. H. A. Publications ..... XVI, XVIII, XIX
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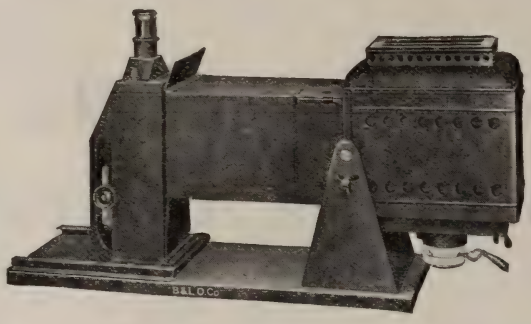
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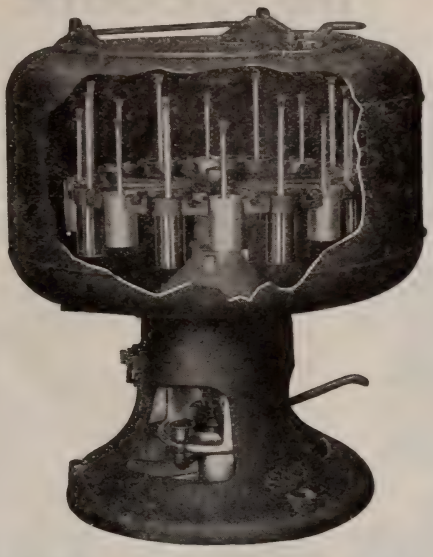
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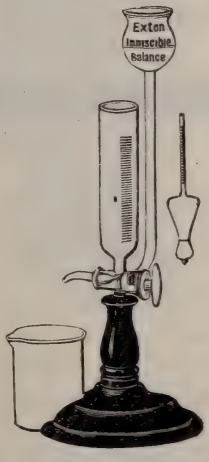
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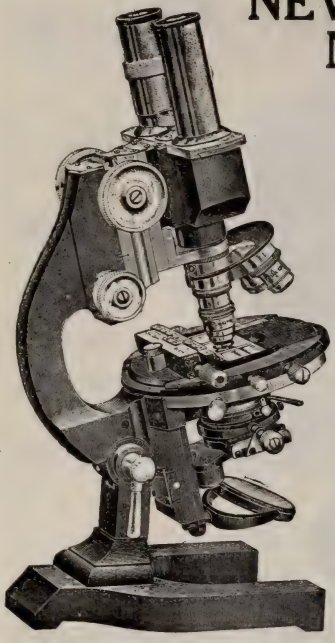
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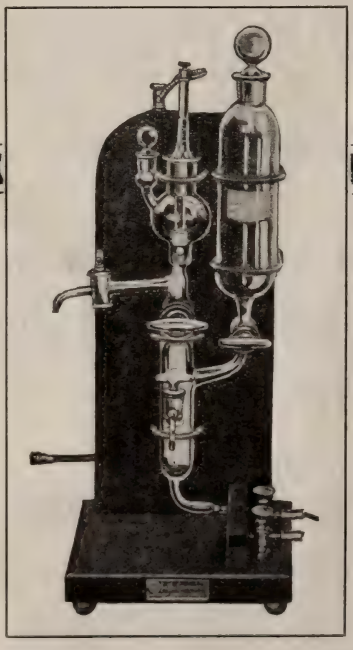


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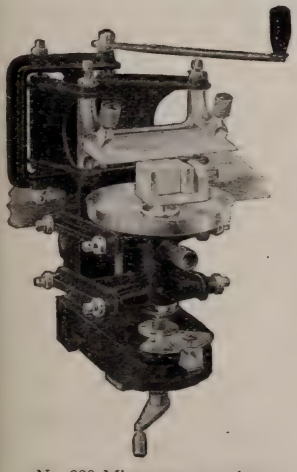
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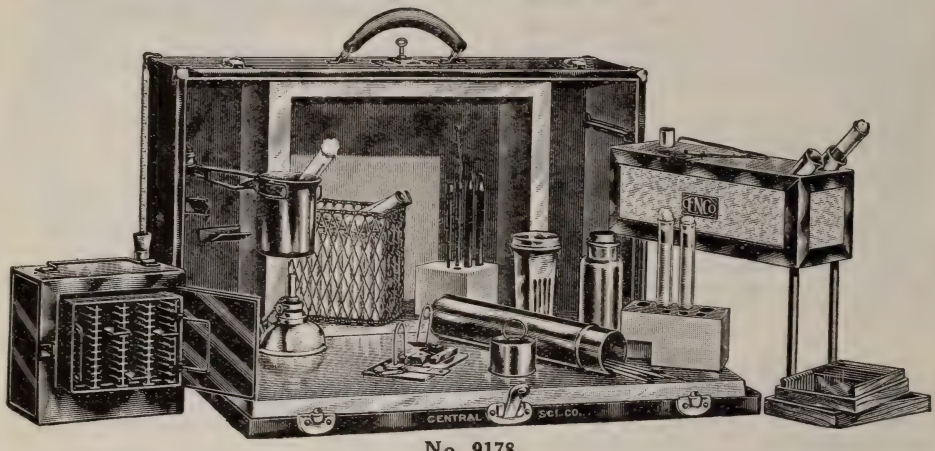
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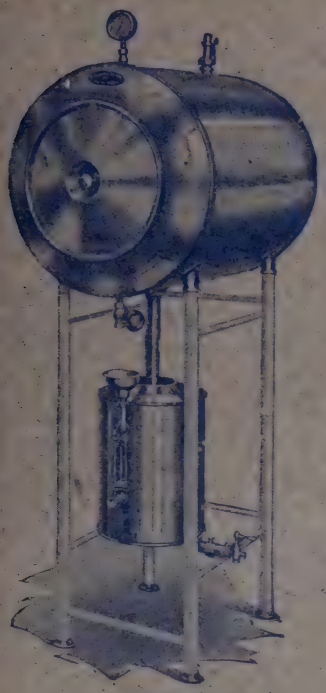
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SEPTEMBER, 1922 CONTENTS VOL. XII, No. 9

Page

Federal Aid for the Protection of Maternity and Infancy 737
Grace Abbott.

Report of the Committee on Medical Service of the State and Provincial Health Authorities of North America 742
Matthias Nicoll, Jr., M.D., Chairman.

The National Research Council 746
Victor C. Vaughan, M.D.

Vital Statistics (Chapter from Report of Committee on Municipal Health Department Practice) 750

A Rapid, Simple Method of Making Charts 757
G. H. de Paula Souza, M.D., Dr. P.H.

Continued on Page VII

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Continued from Page V

Page

Water Supplies (Chapter from Report of Committee on Municipal Health Department Practice) 759

Fifty-first Annual Meeting of the A. P. H. A. 765

Editorials:
- New Editions of Old Masterpieces 774
- The Organization of Public Health Nursing 775
- Of Interest to Sanitary Engineers 775
- A Pernicious Tendency in State Government 776
- Before School Begins 776

Amendments to the Constitution 777

Association News:
- List of New Members 778

Health Employment Bureau 778
Books and Reports Reviewed 780
Public Health Notes 784
Sanitary Engineering 790
Legislation—Federal 793
State Health Notes 797
Public Health Laboratory Notes 804
Industrial Hygiene and Occupational Disease 808
Conferences and Conventions 813

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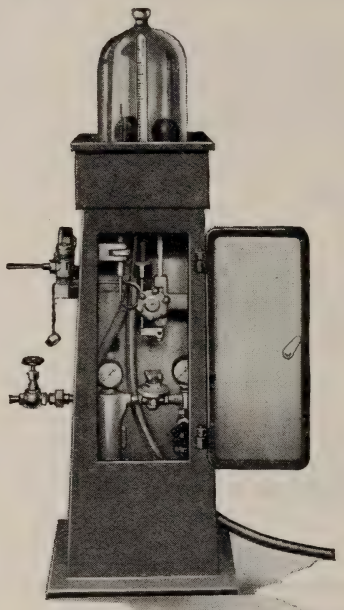
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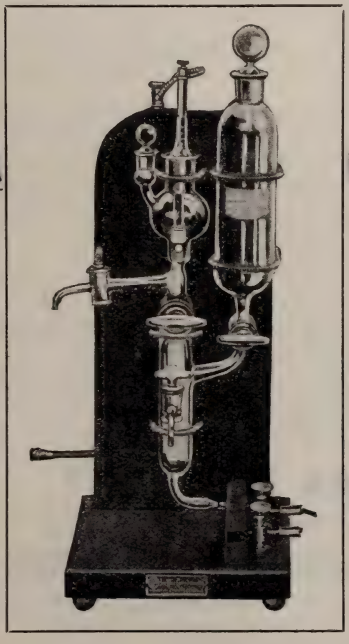
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INDEX TO ADVERTISERS

	Page
BIOLOGICAL PRODUCTS	
Gilliland Laboratories	II
FOOD PRODUCTS	
Borden's Farm Products Company of Illinois	XI
Horlick's Malted Milk Co.	XI
Mellin's Food Company	V
HELP WANTED	
INSURANCE CO. SERVICE TO HEALTH OFFICERS	
Metropolitan Life Insurance Co.	VI
LABORATORIES	
Abbott Laboratories	XVIII
Bendiner & Schlesinger	XXII
Pease Laboratories	XXII
LABORATORY APPARATUS AND SUPPLIES	
Bausch & Lomb Optical Co.	XIV
Central Scientific Company	XVI
Digestive Ferments Company	Back Cover
Eimer & Amend	XXIII
International Equipment Co.	XI
Leitz, Inc., E.	XV
Sargent & Company, E. H.	XII
Spencer Lens Company	VIII
Thomas Company, Arthur H.	X
Will Corporation	IX
LIQUID CHLORINE AND APPARATUS	
Wallace & Tiernan Co., Inc.	VIII
POSITIONS WANTED	
PUBLIC HEALTH COURSES	
Harvard School of Public Health	XX
Johns Hopkins University	XVIII
Massachusetts Institute of Technology	813
University of Pennsylvania	XX
Yale University	XVIII
SANITARY ENGINEERS	
Fuller & McClintock	XXII
Hill & Ferguson	XXII
Metcalf & Eddy	XXII
PUBLICATIONS	
A. P. H. A. Publications	XX, XXI, XXII
Public Health Nurse	XIX
STEREOPTICONS AND MOTION PICTURES	
Educational Exhibition Company	XV
National Motion Pictures Co.	XV
Society for Visual Education, Inc.	XX
MISCELLANEOUS	
Amer. Tel. & Tel. Co.	XIII
West Disinfecting Co.	IV



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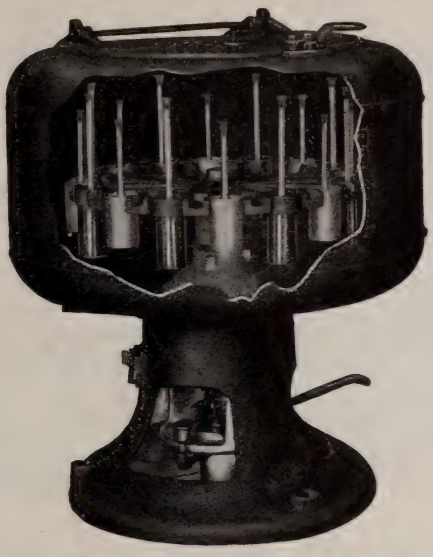
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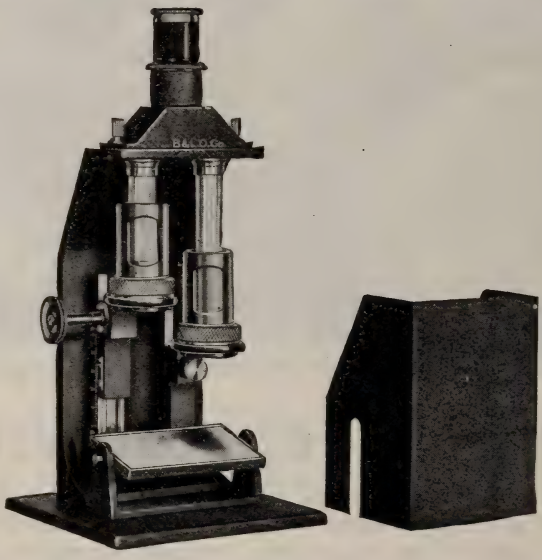
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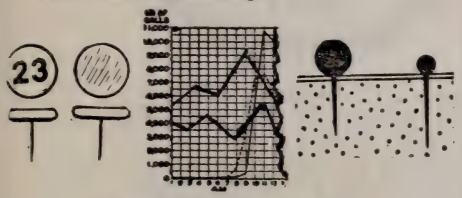
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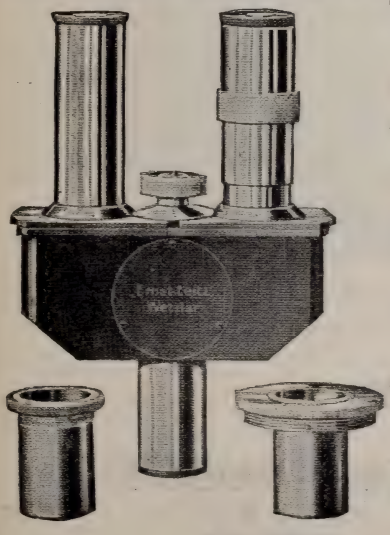
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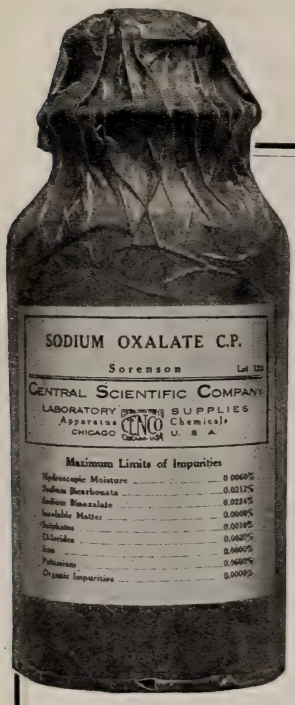
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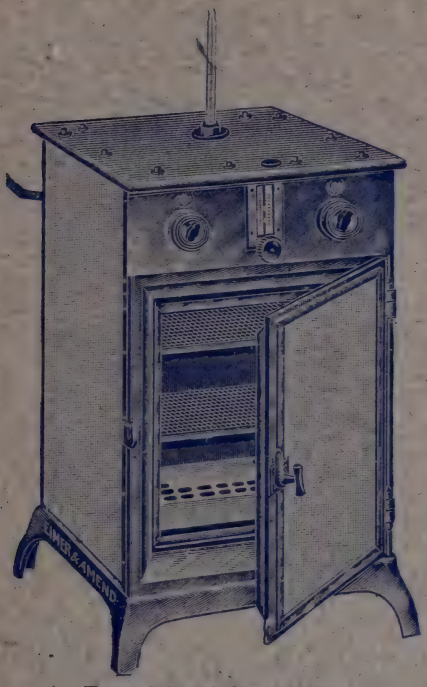
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OCTOBER, 1922 CONTENTS VOL. XII, No. 10

Page

ublic Health Education (Chapter from Report of Committee on Municipal Health Department Practice) 815
Chapter from Report of Committee on Municipal Health Department Practice) .. 815
tephen Smith, 1823-1922 827
chool Hygiene Under Boards of Education 828
Thomas E. Finegan, Ph.D., LL.D.
chool Hygiene Under Boards of Health 832
S. Josephine Baker, M.D., D.P.H.
ocal Health Boards and Medical Milk Commissions 837
David Wilbur Horn, Ph.D.
eport of the Committee on Industrial Hygiene, Conference of State and Provincial Health Authorities 839
John T. Black, M.D., Chairman.
llied Organizations to Meet at Cleveland 840

Continued on Page VII

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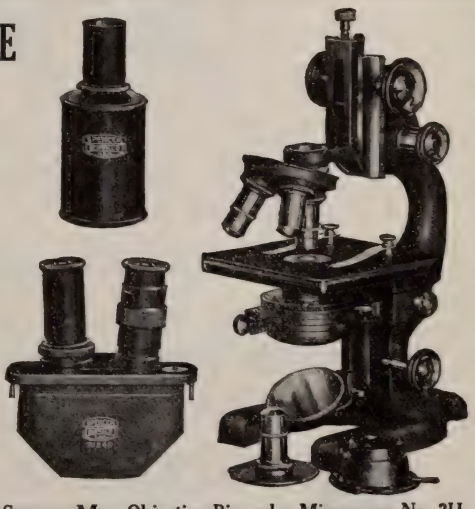
	Page
Health Officer's Exchange:	
Making a Hospital the Civic Health Center. John Nevin, M.D.	841
Financing a County Health Unit. T. J. Robinson, U.S.P.H.S.	843
How the Pueblo Health Department Met the Flood Emergency. Earl C. McCain	844
Preliminary Program, Fifty-first Annual Meeting of the A. P. H. A.	847
General Information	853
Editorials:	
A Great Soul Passes	854
Radio Control	854
The Embargo on Synthetic Drugs	855
Verbum Sap.	855
Association News:	
List of New Members	856
Health Employment Bureau	856
Letters to Editor	857
Books and Reports Reviewed	858
Public Health Notes	861
Sanitary Engineering	866
Legislation—Federal	869
Legislation—State	872
State Health Notes	872
Industrial Hygiene and Occupational Disease	881
Public Health Laboratory Notes	885
Conferences and Conventions	889

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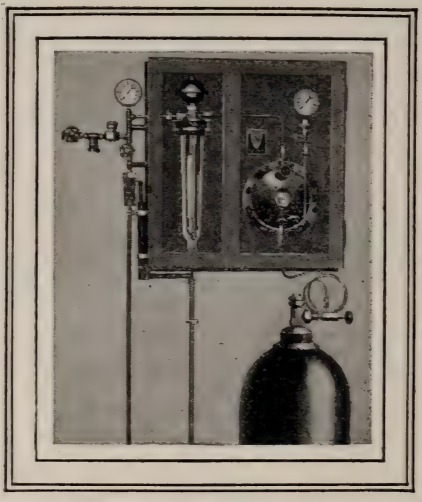
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INDEX TO ADVERTISERS

Page

BIOLOGICAL PRODUCTS
Gilliland Laboratories II
Mulford, H. K..... XIII

FOOD PRODUCTS
Borden's Farm Products Co. of Ill. XI
Horlick's Malted Milk Co..... XI
Mellin's Food Company..... V
Ward Baking Company..... XVIII

HELP WANTED 856

INSURANCE CO. SERVICE TO HEALTH OFFICERS
Metropolitan Life Insurance Co.... VI

LABORATORIES
Abbott Laboratories XXII
Bendiner & Schlesinger..... XXIV
Pease Laboratories XXIV

LABORATORY APPARATUS AND SUPPLIES
Bausch & Lomb Optical Co..... XIV
Central Scientific Company..... XVI
Digestive Ferments Company..... Back Cover
Eimer & Amend..... XXV
Greiner Company, The Emil..... XXI
International Equipment Co..... XI
Leitz, Inc., E..... XV
Sargent & Company, E. H..... XII
Special Chemicals Company..... XXI

Spencer Lens Company..... VII
Thomas Company, Arthur H..... X
Will Corporation IX

LIQUID CHLORINE AND APPARATUS
Wallace & Tiernan Co., Inc..... VIII

PUBLIC HEALTH COURSES
Harvard School of Public Health.. XXII
Massachusetts Institute of Technology XVIII

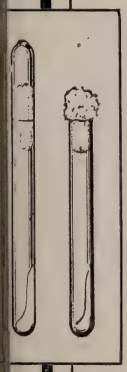
SANITARY ENGINEERS
Fuller & McClintock..... XXIV
Hill, Jr., Nicholas S..... XXIV
Metcalf & Eddy..... XXIV

PUBLICATIONS
Appleton & Company, D..... XIX
A. P. H. A. Publications....XXII, XXIII, XXIV
Wiley & Sons, Inc., John..... XX

STEREOPTICONS AND MOTION PICTURES
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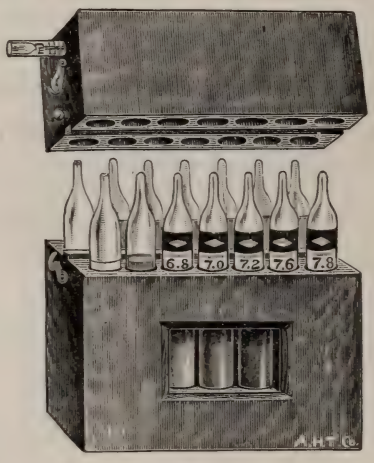
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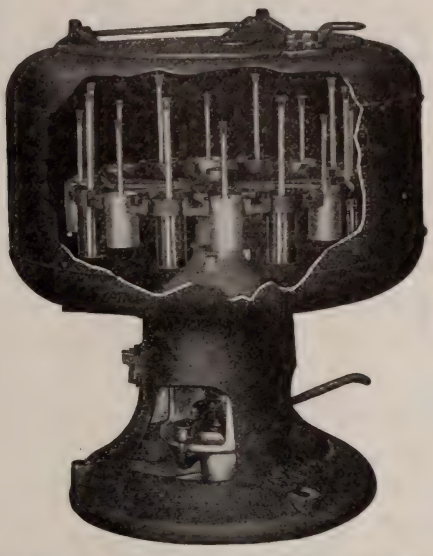
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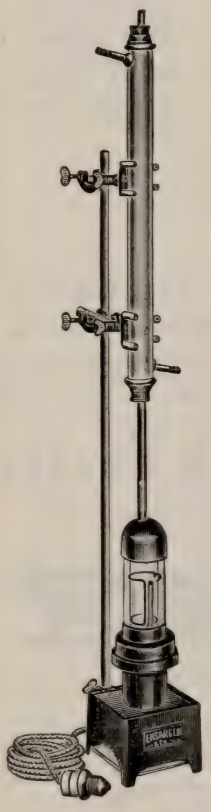
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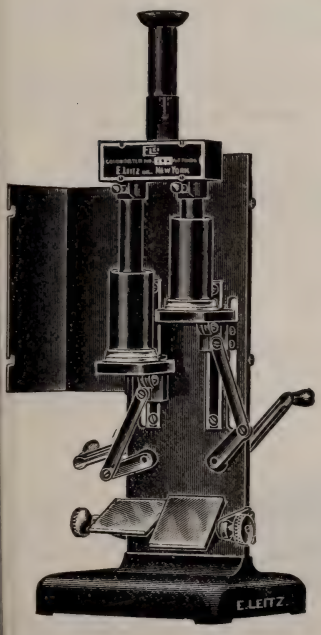
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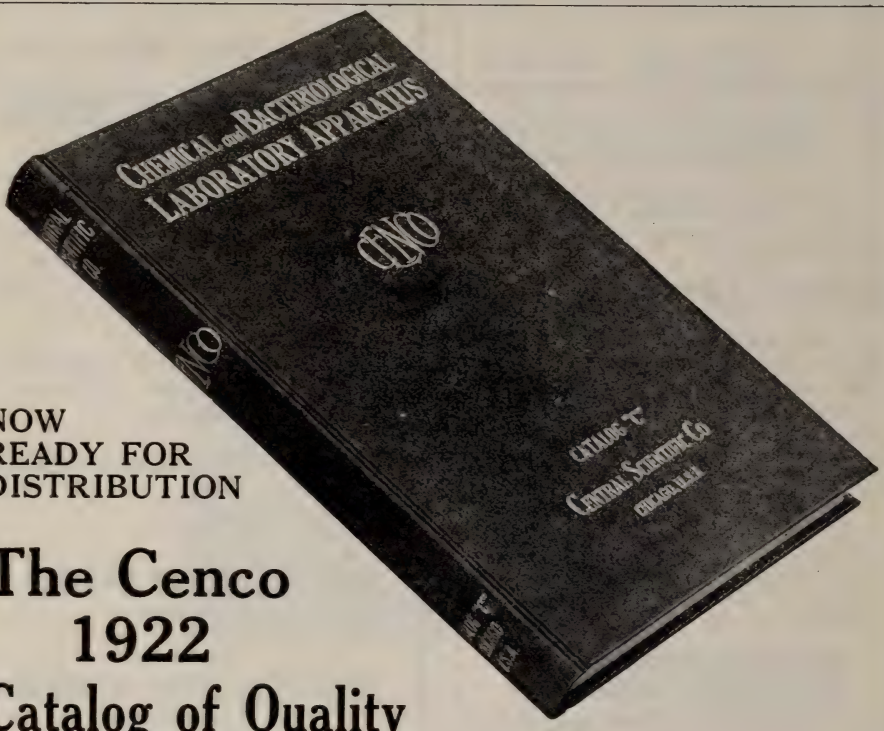
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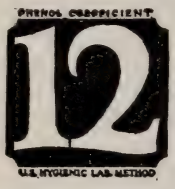
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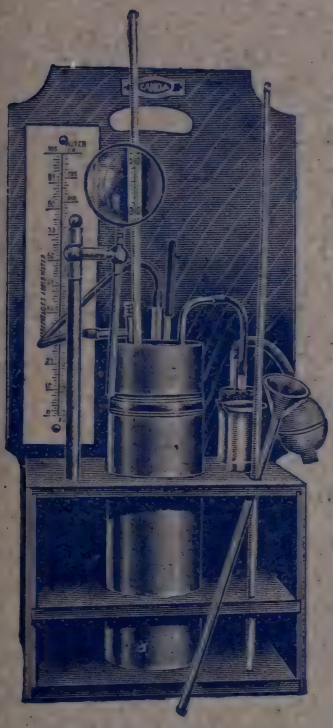
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NOVEMBER, 1922 CONTENTS VOL. XII, No. 11

Page

An Ideal Health Department for a City of 100,000 Population (Section II from the Forthcoming Report of the Committee on Municipal Health Department Practice) C.-E. A. Winslow, Dr. P. H., and H. I. Harris, M.D. 891

The Present Status of Our Knowledge of the Vitamins and Its Application to the Dietary 908
H. C. Sherman, Ph.D., Chairman.

Statistical Evaluation of Public Health Activities 915
Raymond Pearl, Ph.D., Sc.D., LL.D.

Coordination of Public and Private Agencies in the Conduct of a Completely Generalized Public Health Nursing Service 922
Elizabeth W. Holt, R.N.

Some Mortality Statistics of South American Republics 924
Frederick L. Hoffman, LL.D.

Continued on Page VII

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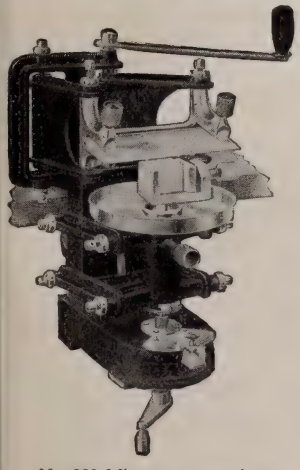
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Continued from Page V

	Page
Coordination of Voluntary Health Agencies. Donald B. Armstrong, M.D.	929
Should the Social Service Departments in Children's Hospitals be Developed Into Departments for the Prevention of Disease? Howard Childs Carpenter, M.D.	932
A Correction	940
Public Health Nursing (Abstract of Chapter from Forthcoming Report of the Committee on Municipal Health Department Practice)	941
Cancer Week	942
Health Officer's Exchange:	
Ventilation of Privies in Birmingham. W. A. Hardenbergh	943
Red Cross Roll Call	945
1920 Life Tables for States and Cities	946
Editorials:	
How You Can Help	948
What Do You Say?	949
The Common Communion Cup	949
Filibustering in Two Hemispheres	950
Association News:	
List of New Members	950
Health Employment Bureau	951
Books and Reports Reviewed	952
Public Health Notes	957
Sanitary Engineering	964
Legislation—Federal	966
State Notes	970
Industrial Hygiene and Occupational Disease	977
Public Health Laboratory Notes	979
Conferences and Conventions	984



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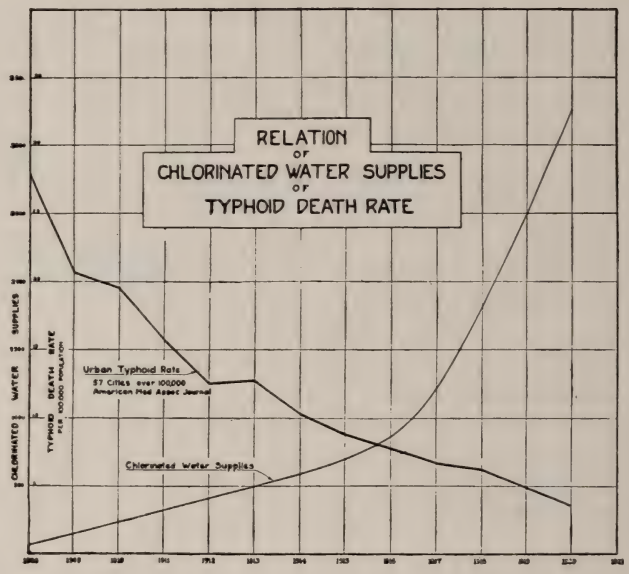
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INDEX TO ADVERTISERS

	Page
BIOLOGICAL PRODUCTS	
Gilliland Laboratories	II
FOOD PRODUCTS	
Borden's Farm Products Co. of Ill	XI
Horlick's Malted Milk Co.	XI
Mellin's Food Company	V
HELP WANTED	951
INSURANCE COMPANY SERVICE TO HEALTH OFFICERS	
Metropolitan Life Insurance Co.	VI
LABORATORIES	
Abbott Laboratories	XVIII
Bendiner & Sclesinger	XX
Pease Laboratories	XX
LABORATORY APPARATUS AND SUPPLIES	
Bausch & Lomb Optical Co.	XV
Central Scientific Co.	XVI
Digestive Ferments Co.	Back Cover
Eimer & Amend	XXI
International Equipment Co.	XI
Leitz, Inc., E.	XIV
Sargent & Co., E. H.	XII
Special Chemicals Co.	XIV
Spencer Lens Co.	VII
Thomas Co., Arthur H.	X
Will Corporation	IX
LIQUID CHLORINE AND APPARATUS	
Wallace & Tiernan Co., Inc.	VIII
POSITIONS WANTED	952
PUBLIC HEALTH COURSES	
Harvard School of Public Health	XVIII
University of Pennsylvania	XVII
Yale University	XVII
SANITARY ENGINEERS	
Fuller & McClintock	XX
Hill, Jr., Nicholas S.	XX
Metcalf & Eddy	XX
PUBLICATIONS	
A. P. H. A. Publications	XVIII, XIX, XX
STEREOPTICONS AND MOTION PICTURES	
Educational Exhibition Co.	XVII
National Motion Pictures Co.	XVII
Society for Visual Education	XX
MISCELLANEOUS	
West Disinfecting Co.	XIII
American Telephone & Telegraph Co.	IV

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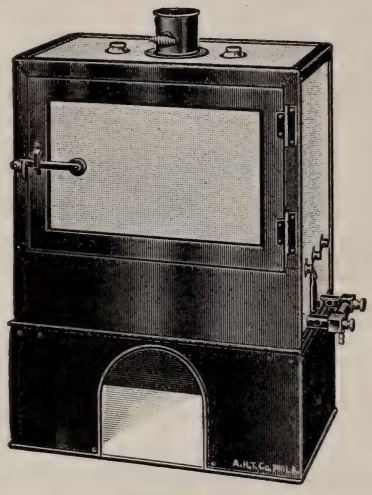
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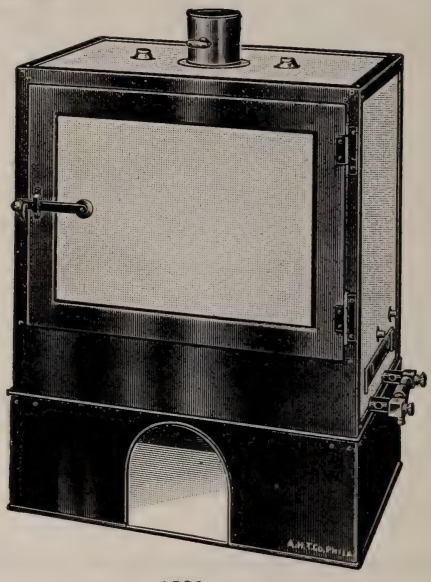
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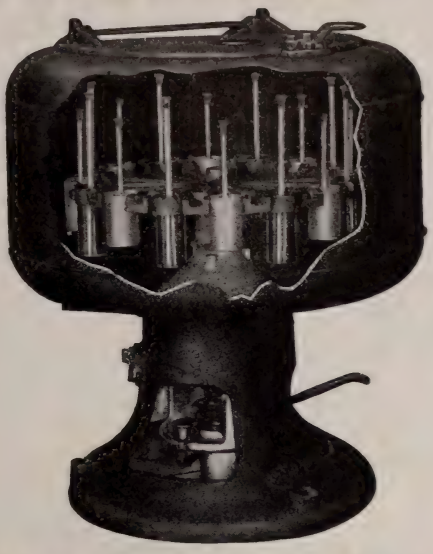
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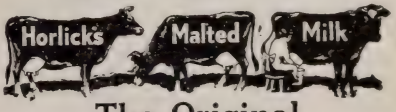
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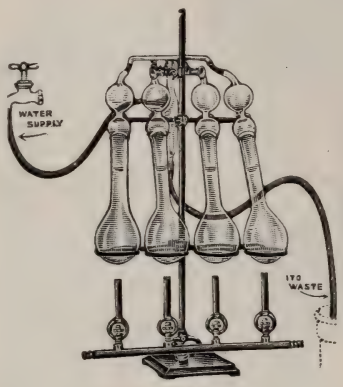
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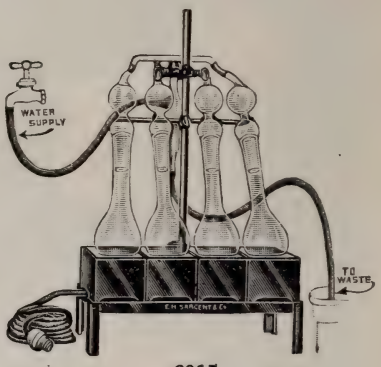
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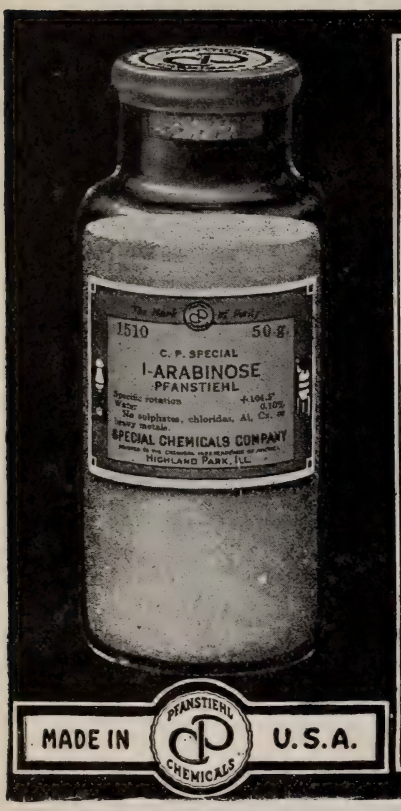
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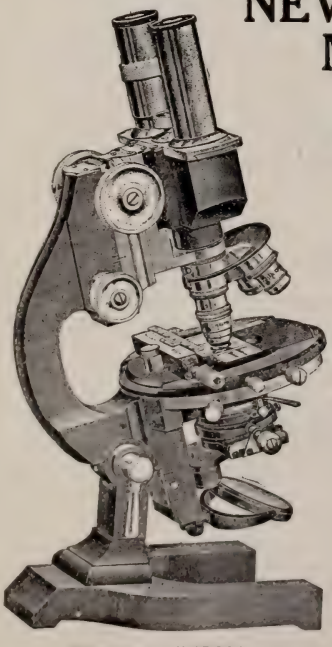
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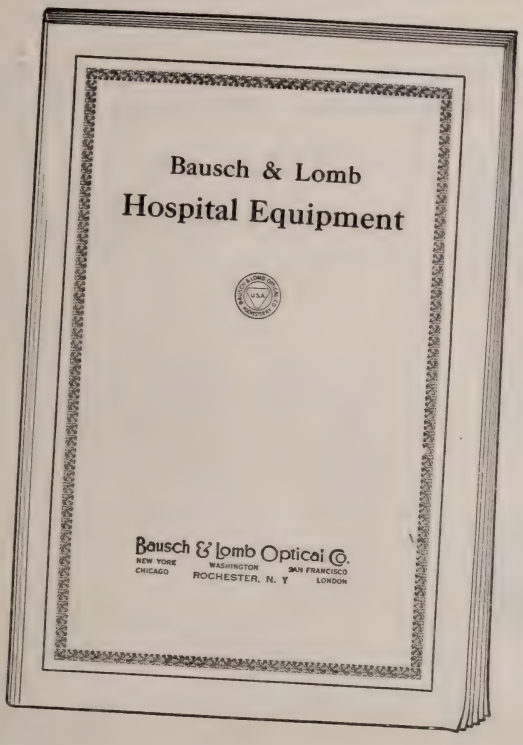


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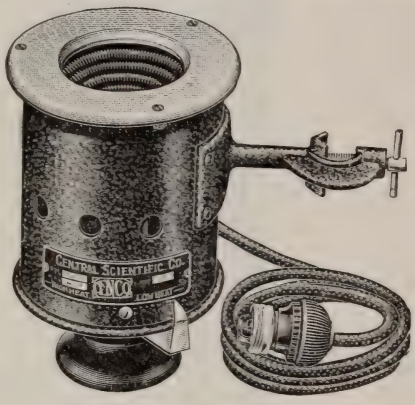
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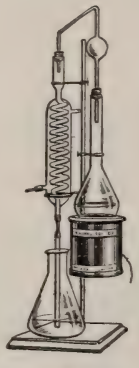
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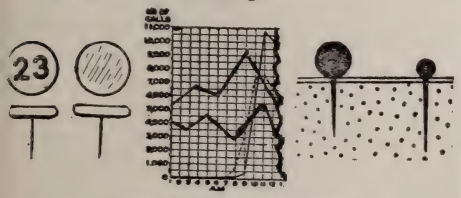
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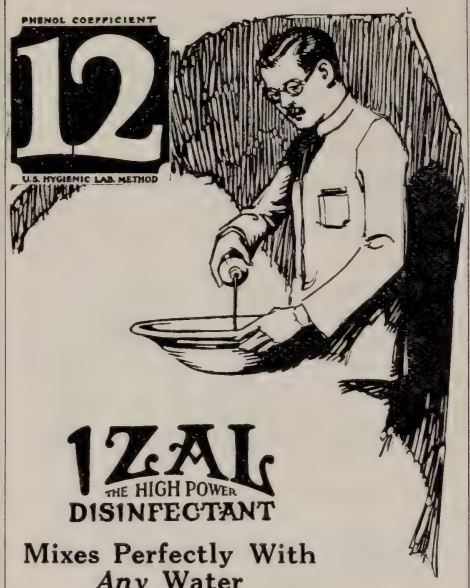
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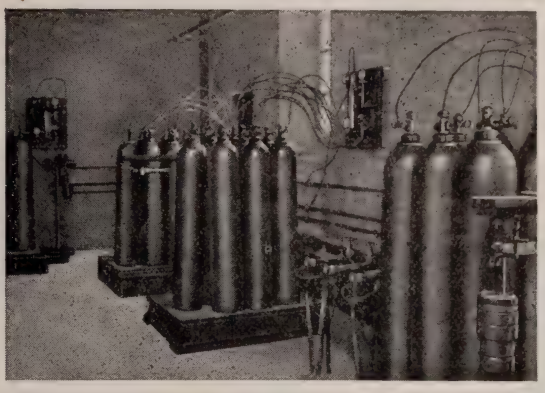
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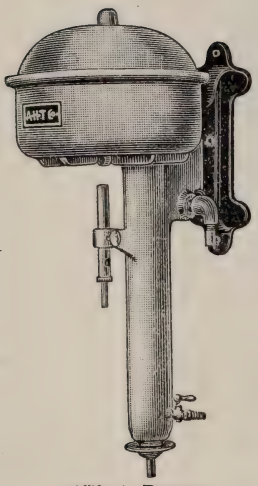
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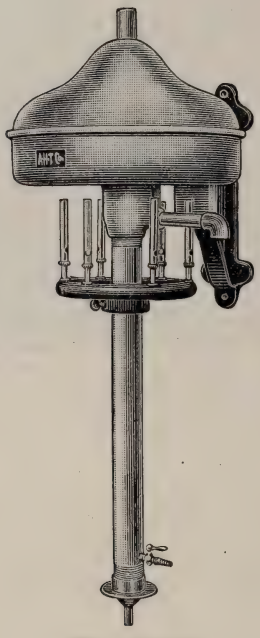
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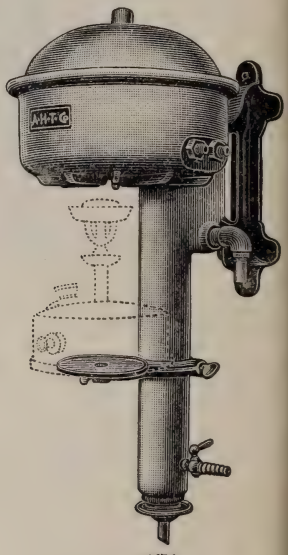
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DECEMBER, 1922 CONTENTS VOL. XII, No. 12

	Page
Presidential Address A. J. McLaughlin, M.D.	985
Report of Committee on Reorganization Henry F. Vaughan, D.P.H., Chairman	987
Constitution and By-Laws of the A.P.H.A.	992
Symposium on the Next Step for State Health Departments	995
Eugene R. Kelley, M.D.	995
W. S. Rankin, M.D.	999
Edward Martin, M.D.	1005
Isaac D. Rawlings, M.D.	1009
Ennion G. Williams, M.D.	1012

Continued on Page IX

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Continued from Page VII

Page

Measure for the Control of the Acute Respiratory Diseases 1015
W. A. Evans, M.D.

Plans to Reduce the High Mortality from the Acute Respiratory Diseases in Winter 1022
Henry F. Vaughan, D.P.H. and George T. Palmer, D.P.H.

1922 Progress Report of the Committee on Educational and Professional Standards for Vital Statisticians 1028
Edwin W. Kopf, Chairman

A Mental Hygiene Service for Pre-School Children 1030
Arnold Gesell, Ph.D., M.D.

Health Officers' Exchange:
- Sketch Mapping for Public Health Problems, F. E. Hulse 1034
- Psychology in Rural Public Health Work, "Si Cology" 1038

Christmas and the Double-Barred Cross 1039

Editorials:
- Dr. Henry F. Vaughan to Edit Journal 1040
- Toward the Profession of Public Health 1040
- An Awakening 1041

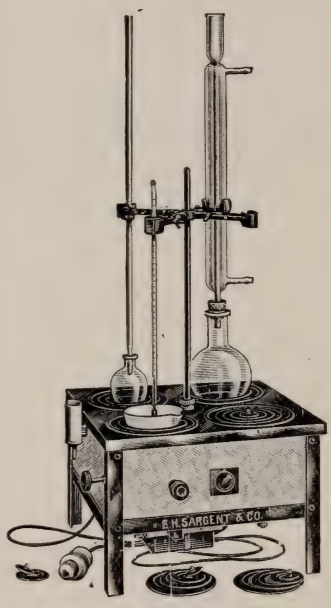
Association News:
- Governing Council 1042
- E. C. Levy, M.D., New President of the A.P.H.A 1042
- Resolutions 1045
- List of New Members 1047

Health Employment Bureau 1049
Books and Reports Reviewed 1050
Public Health Notes 1053
Legislation—Federal 1062
State Notes 1067
Public Health Laboratory Notes 1078
Conference and Conventions 1081

INDEX TO ADVERTISERS

	Page
BIOLOGICAL PRODUCTS	
Gilliland Laboratories	II
Mulford, H. K.	VIII
FOOD PRODUCTS	
Borden's Farm Products Company of Illinois	XVI
Horlick's Malted Milk Co.	XVI
Mellin's Food Company	VII
HELP WANTED	1049
INSURANCE CO. SERVICE TO HEALTH OFFICERS	
Metropolitan Life Insurance Co.	IV
LABORATORIES	
Abbott Laboratories	XIV
Bendiner & Schlesinger	XVIII
Pease Laboratories	XVIII
LABORATORY APPARATUS AND SUPPLIES	
Bausch & Lomb Optical Co.	XI
Central Scientific Company	XII
Digestive Ferments Company	Back Cover
Eimer & Amend	XIX
Greiner Company, The, Emil	XV
International Equipment Co.	XVII
Leitz, Inc., E.	XVI
Sargent & Company, E. H.	X
Spencer Lens Company	XVII
Thomas Company, Arthur H.	VI
LIQUID CHLORINE AND APPARATUS	
Wallace & Tiernan Co., Inc.	V
POSITIONS WANTED	1049
PUBLIC HEALTH COURSES	
Harvard School of Public Health	XV
SANITARY ENGINEERS	
Fuller & McClintock	XVIII
Hill, Jr., Nicholas S.	XVIII
Metcalf & Eddy	XVIII
PUBLICATIONS	
A. P. H. A. Publications	XV, XVIII
STEREOPTICONS AND MOTION PICTURES	
Educational Exhibition Company	XIV
National Motion Picture Co.	XIV
Society for Visual Education	XVIII

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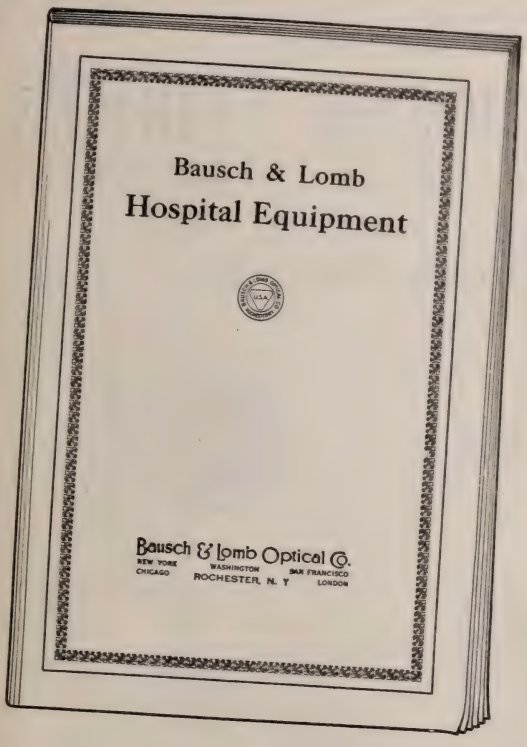
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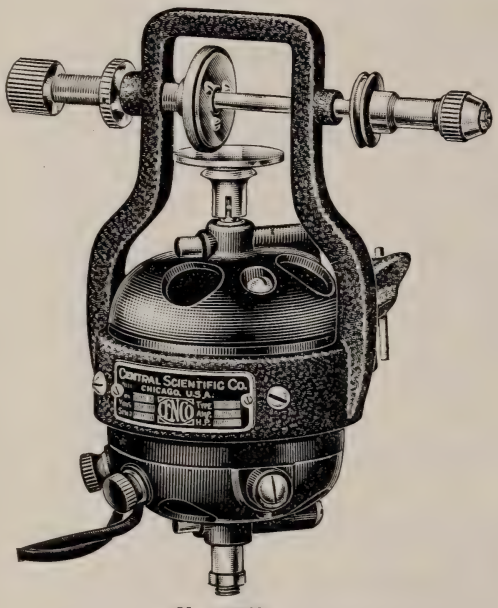
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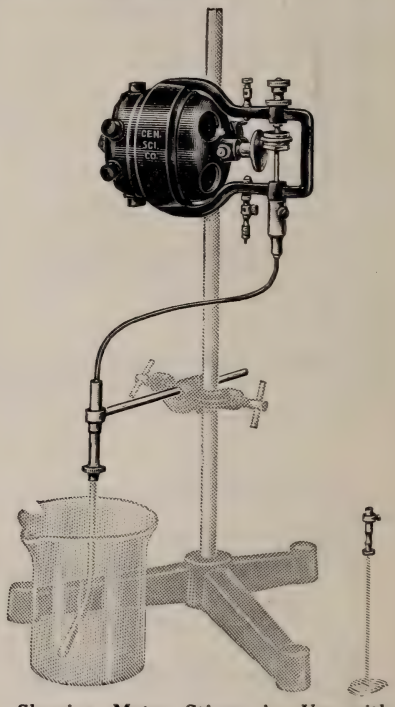
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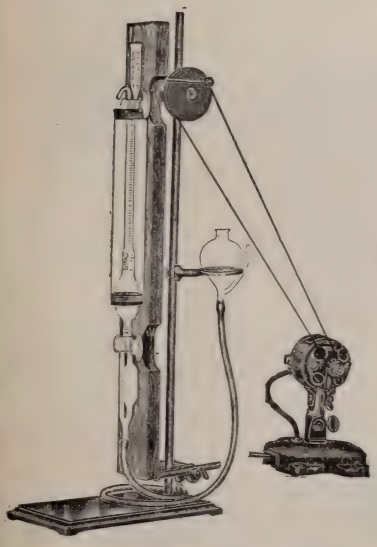
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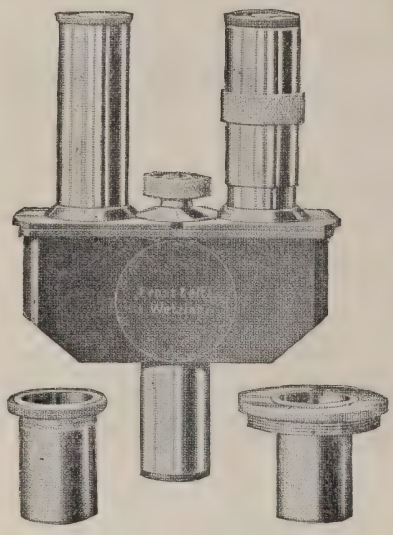
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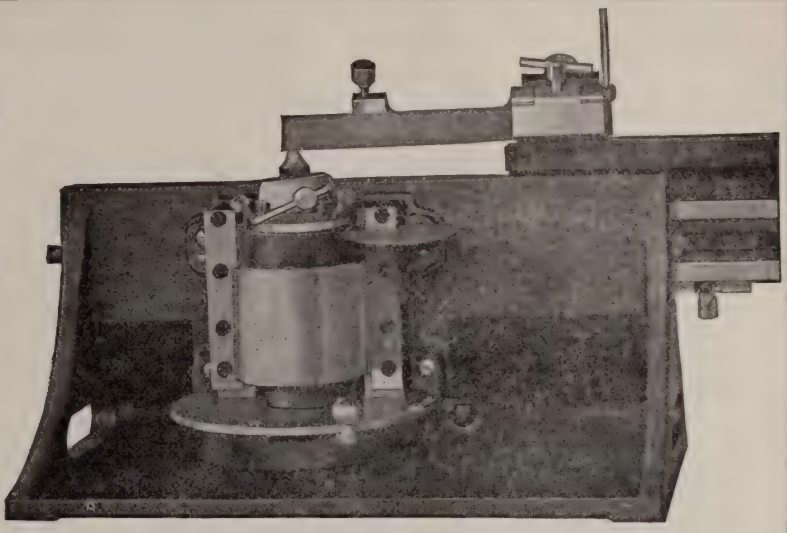
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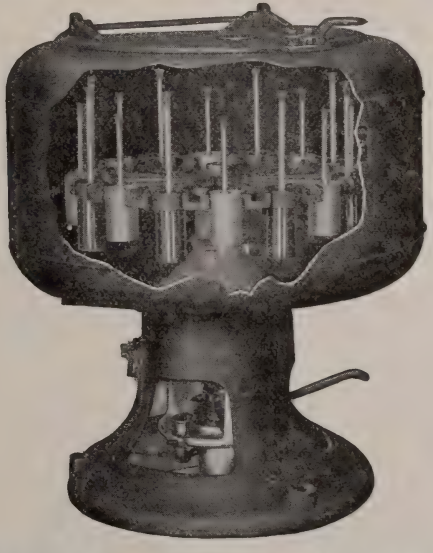
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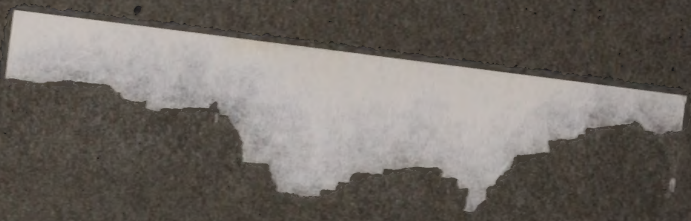
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